THE

AMERICAN FARMER:

DEVOTED TO

Agriculture, Horticulture, and Rural Economy.

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"O FORTUNATOS NIMIUM SUA SI BONA NORINT
"AGRICOLAS." . . . . . *Virg.*

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SEPTEMBER.

"But oh ye spring flowers! Oh ye early friends!
Where are ye, one and all?
The sun still shines, the summer rain descends,
They call forth flowers, but 'tis not you they call;
On the mountains,
By the fountains;
In the woodland dim and gray,
Flowers are springing, ever springing,
But the spring flowers, where are they?"

Editorial Gossip from the Farm.

DEAR FARMER: This writing brings us to the middle of August, and nature is as fresh and green as in May. The summer sun glows "hotter and hotter" on the corn field, but balmy breezes temper his fierceness. The flowers, not indeed "the spring flowers," our "early friends," but the summer flowers

"Blaze on the hills, and glitter in the brake."

Birds are singing as cheerily, and butterflies as gaily winging their busy lives away, as in the leafy month of June. We have them all still—

"The blue above, the music in the air,
The flowers upon the ground."

I said last month, in the notes of Farm Work, we might take things somewhat lazily in August, and so I mean to do, if I may be allowed. I shall not, at least, trouble myself especially to furnish your monthly allowance, but get you to be easily satisfied.

It is "good to be merry and wise" an old song says; that is, I suppose, wise enough to be merry in the right place and at the right time, as our friend was'nt you know, of whom I wrote last month; but if I could get him to run with me through the Agricultural Journals he would find indeed, so many "right places," that he need not go amiss. As for instance, "*Ague caused by Eating Pork*," is an item we are treated to by the New York City Farmers' Club, whose sayings and doings are faithfully reported by the *Tribune*. Having moved last year to Illinois, a correspondent of the Club thinks it worth while, not only to make report of the large things he has made out of little, but to give his opinion on such matters as may interest his correspondents. "I had no ague," he said, "although it is aguish here; I think it is the pork that causes the ague." We are informed by the reporter that "*some* of the members did'nt agree with the assertion of the writer, with regard to pork." There is comfort, at least, in this, for the old fashioned lovers of "hog and hominy."

I have never become a convert, as your pages will bear witness, to the fancy for huge hogs that swelter through the summer months in foul styes, to be converted, when cool weather comes, into meat for the use of man. Hence I have never had before my eyes the fear of tapeworm, trichinæ, or even ague, as a consequence of eating. Let him tremble whose love of gain makes of his porker an unclean beast indeed. The hog of my affections, of spare-rib and sausage memory, of chine and ham, is a hog of clover and corn, with a dash perhaps of woodland mast; a fellow of wholesome activity, sufficient to second a keen appetite for a forbidden cornfield; a cold water and a clean water hog, both for drink and for cooling his fat sides.

What shall I say of corn—the corn crop of the season. If it takes a share in the big estimate of the newspapers, and the Department, it will not be in Maryland, as I think. There has been too little of corn-weather since the very late time

when the grain began to form. No lack of rain, but lack of hot suns and sweltering nights; and it is now too late in the season to expect such weather. There will be fodder enough but not grain in proportion. And so it has turned out with other grains. It will be found, when too late for the farmer to profit by it, that the estimates of the wheat crop have been greatly exaggerated. All the accounts I have from Maryland and more Southern States agree in this.

Egyptian Corn.—A correspondent writes from Georgia, that seeing this corn recommended very highly by us in our April or May No., he was induced to invest $1.50, and sent that amount to Mr. Lindsey, but has failed to get a reply. We have heard of other like cases, and it may be, we do not know, that we and the public have been alike victimized by this Mr. Lindsey. Such things do happen, and with all due care, it is hard to guard against them. But is it not remarkable that our correspondent should say, that *we* "recommended" this corn, when we said not a word of such import, because knowing nothing of it we had nothing to say. He has attributed to us, no doubt, the extravagant commendations of the advertisement, which was written, of course, by Lindsey himself, to make his corn sell, and should have been taken, therefore, with due allowance. The room occupied by an advertiser is *hired* by him to say what he thinks fit of his wares. We allow him full liberty, within the bounds of decency, if we have no reason to believe him a swindler, and take no responsibility as to the character of the article advertised, unless we endorse it in the editorial columns. This is rarely done; nor is a paid advertisement ever covertly introduced among reading matter, nor allowed to take any other than the distinct form of an advertisement. The reader is therefore fairly on his guard.

Japan Corn.—There is growing at the College this year, among other new and curious things, a corn, the seed of which was imported from Japan. Every leaf is distinctly striped, white and green, and the plant very pretty and curious. There is at present some doubt of its maturing seed in this latitude. The grain is said to make beautiful meal.

The hay crop is now fully saved, is an abundant one, but the frequent rains increased greatly the labour of the harvest, and have discoloured and damaged materially its appearance, and, of course, injured it in quality, besides protracting the time of securing it too long for its good. I observe that it has been left generally much too long in the cocks; many persons cutting their whole crops before stacking or putting in the barn any portion of it. It is good management to secure it finally as the work advances, cutting no faster than it can be cured, and put immediately away when cured.

On the now famous hay farm of Mr. Ross Winans, it has been a common thing to see some dozen of the best mowers, each with two horses, following one another, for the two months past, and the work hardly yet done. Yours, truly, &c.

Farm Work for the Month.

FERTILIZERS.

The matter of fertilizers, what we shall use, how much, or whether we shall not dispense with them at the high prices now asked, demands our consideration. As to what we may best use of the various articles so abundantly recommended by those who have them for sale, and, it is fair to say, by very many who have used them, we are not prepared to give advice, There is no doubt, however, that extraordinary competition has driven manufacturers into more liberal modes of preparing their several compounds, and that experience and increased intelligence have enabled them to offer fertilizers of a much more reliable character than most of those which formerly flooded the market. We are, therefore, on every account, more likely to be well supplied now, and if we are fortunate enough to escape the clutches of dishonest dealers, we may be pretty well assured of a good article from one or other of numerous sources of supply. Look to the substantial advertisements in the *Farmer*.

As to how much may be used, that is to be determined by the circumstances of the case.—Three hundred pounds of the best mixtures of phosphate and ammonia may be little enough, if the design be to improve the land, making it productive of an after crop of grass, as well as a good crop of wheat; but one hundred, applied with the seed, by the drill, is enough for the wheat crop, and half that quantity will be greatly serviceable. If more be needed on account of grass, the expenditure may very well be divided between spring and fall, by putting on the remainder in February or March. We cannot advise to forego the use of fertilizers, at least to the extent mentioned, unless the land be capable of producing twenty-five bushels to the acre, in an average season, without it.

It is a reproach to our general management that after the use of enormous quantities of fertilizers, through a course of many years, they have not been so used as to produce a home supply sufficient for all needful purposes.

Lime for general improvement, and especially for grass culture, it is desirable to supply wherever supposed to be needed, and whenever it can be applied. If the land has not been limed, even a very few bushels will act very favorably upon the wheat and grass, but generally it is thought advisable to apply not less than twenty bushels of unslaked lime, which should be water-slaked to a fine powder before using.

PREPARING FOR WHEAT.

No time should now be lost in making due preparation for the wheat crop. The clover and oat stubble, if not already down, should be broken immediately and very firmly packed with a heavy roller and drag-harrow.

If corn-ground is to be put in wheat, the crop should be cut off at the ground as soon as the caps which cover the ear turn white; an indication of sufficient maturity to make it safe to set it up in stacks in the field. This being done with regularity, and not in too large stacks, little ground will be occupied, the corn well secured, and a great quantity of good corn-fodder secured against frost. By the middle of the month, early planted corn will be ripe enough to cut. Whether the ground is to be ploughed before seeding or not, every one will determine for himself. We should sow on the surface, and put in with small ploughs or shovels, or put in with the drill, without other preparation than taking off heavy grass by running the harrow forward and back in its own track.

TIME OF SEEDING.

Corn ground we should sow first as early as the corn can be got off the ground. It may suffer from fly in consequence, but the advantages in all other respects are so great as greatly to counterbalance the risk from fly. Clover fallow we should have in perfect readiness, and sow as soon as possible after the 5th of October, when it will be comparatively safe from fly.

PREPARING SEED.

Seed should be prepared by a thorough riddling, to take out all defective grains and small seeds of weeds. Then to rid it thoroughly of smut, make a very strong brine, into which it should be poured very slowly, that the balls may float. Skim occasionally all floating matter, and then stir the grain slowly from the bottom, to disengage what may have been carried down with the grain. A very thorough washing in this way is perhaps sufficient, but some prefer soaking for twelve hours. When taken out, throw into baskets to drain well, and, while moist, sprinkle it with fresh lime, or blue stone, striving to have every grain well coated. In necessary absence of either of those, use dry wood ashes or plaster.

RYE.

Rye should be sown very early this month. It is a good crop to sow grass seeds with. It is not a desirable grain crop where the land is fit to produce even a moderate crop of wheat. As winter pasture for calves and sheep, and for early spring cutting for green food, it is very useful. For these purposes, a bushel and a half of seed to the acre, and for grain, a bushel is sufficient.

TIMOTHY.

Timothy should be sown as early as practicable, if it be important to have a crop the first season; and to insure this, sow half bushel of good seed to the acre, manuring well by top-dressing or some good fertilizer.

TURNIPS.

If a sufficient crop of these be not now growing, they may still be sown for table use.

CORN FIELD.

The corn field is, from this time, liable to depredations from unruly stock, and fences and gates should be well guarded.

Corn blades make the best fodder for driving or working horses, if well cured and preserved. These are saved, however, in the ordinary mode, by stripping the stalk while green, at considerable expense of weight in the grain, while the labor is much more than that of saving timothy. They should not be gathered before the time indicated as proper for cutting off at the ground, when the caps turn white. They are easily damaged by exposure, and as soon as sufficiently cured, should be put under cover.

Seed corn should be selected in the field from prolific stalks, and from the lowest ear; low shooting tending, it is believed, to heavy bearing. It should be hung up early, out of the way of rats and mice, to cure well before severe freezing.

TOBACCO.

This is an important month in the management of this crop. Try to make such progress with it that all may be made safe by the tenth of October.

Two years ago there was utter destruction, by frost, of all tobacco outstanding in Maryland except, perhaps, in very favored localities, on the very night of the 10th. Such a frost, at so early a period, was a very unusual thing, but the observation of many years has satisfied us that nothing is gained in the latitude of Maryland, much less in higher ones, by having tobacco in the field after the day

named. It wants all the time after that for curing. It runs the risk by which such destruction was done as above named, and escaping this, it is very liable to serious damage by freezing in the house at a later time, because it has not had time to cure. These remarks apply, of course, only to that which is cured without fire.

On the other hand, do not be too easily frightened into cutting largely, by a threat of frost before that time. There will be occasional sudden changes of weather and cool nights, but anywhere south of Baltimore, frost that will kill tobacco is very unusual before the 10th of October. The practice of cutting largely and putting in "frost-heaps," is very objectionable.

Worming, working, suckering, topping, cutting and hanging in the house, will all need attention this month, as circumstances may require. The late tobacco should be still worked. All worms must be destroyed before the crop is put into the house. Continue to top as the growth advances, and do not seek to have more leaves than will get full length and maturity. Take out all suckers before housing. Top all by the 15th of the month. Do not cut when wet with rain or dew.

Blanching Celery.

We copy the following from the Gardener's Chronicle, that our readers may give it a trial during the coming autumn, and likewise for the purpose of suggesting another substance for packing celery in during winter, which we have found very successful when used for beets, parsnips, turnips, &c. We allude to fine moss, pulverized if necessary, such as nurserymen use for packing plants. It is lighter, cleaner, and more easily handled than sawdust:

Having had some trouble in keeping late celery from rotting in a new kitchen garden, where the soil was very retentive and damp, and the plants earthed up in the usual manner, I have since used sawdust for the purpose, and find that it answers perfectly. Last winter all the late celery was earthed up in sawdust, and it kept quite sound till April, and no slugs or insects attacked it under ground, the heads being very solid, clear and crisp, and well flavored. I had some doubts that the sawdust from the resinous trees might give the celery a disagreeable flavor, but on trial I found this not to be the case, and the sawdust is now taken indiscriminately from the sawpits where different kinds of trees are sawn up. Before the late severe frost occurred in October, I had just finished the earthing up of all the late celery with sawdust, and I find it is now wonderfully fresh, the frost not having penetrated far through the surface to the hearts.

The Vegetable Garden.

Prepared for the American Farmer, by DANIEL BARKER, Maryland Agricultural College.

SEPTEMBER.

Cabbage, for spring supply, may now be planted out on ground well manured and turned up deeply.

Cauliflower may be planted in frames toward the end of the month for spring use. We plant in quantities and rather close, in order that the plants may protect each other. Those sown as hitherto directed will now be in rough leaves, and should be planted in frames or pots as directed last month.

Endive.—Sow for succession, and plant out those advanced on a warm, well-manured piece of ground, to stand until early winter, after which they will require some light protection, and afford nice plants for salad throughout the winter months.

German Greens or Kale, should be sown upon light, warm, well-manured ground. When sown not later than the 20th, and stood well through the winter, we have found it to be one of the most useful and remunerative of early spring crops.

Beans.—The snap varieties may yet be sown for a late crop. We generally make two sowings of the "Early Valentine," or "Six Weeks," during the first ten days of the month, from which we not unfrequently have a bountiful supply of beans until killed by frost.

Celery.—Earth up as it advances in growth, keeping the rows quite free from weeds, and the spaces between the rows well worked by the hoe or cultivator.

Corn.—Plant during the first ten days for the last crop. We consider the "Early Darling" one of the very best varieties for the last crop. We are aware that the season must be unusually propitious for the above sowing to produce roasting ears, still we venture, and if no roasting ears, it makes excellent fodder.

Lettuce.—Sow from the first to the middle of the month, upon warm, sheltered borders, to stand the winter, and to be planted out in spring. Sow in such locations where shelter can be afforded during severe weather. Plant out from those sown in August the strongest plant, in well sheltered situations to stand the winter and come into use in early spring.

Onions should be taken up when the weather is dry, and well ripened previous to storing away for winter.

Potatoes, when ripe, should be taken up as opportunity serves.

Spinach should be sown the beginning of the month for a winter crop.

Turnips.—Sow the first week for the last time this season. Thin and hoe advancing crops. By sprinkling them with lime, when the dew is on them, will protect them from the ravages of the common slug, and otherwise be of great benefit to them.

Parsley.—Let a portion of the spring sown be cut down, that it may grow again before winter. Pot some of the strongest roots to put in a frame for furnishing green leaves during severe weather.

As the summer crops are removed, manure, plow, dig or trench the ground previous to the autumnal rains. Where the ground is clay, or otherwise very adhesive, this is of the greatest importance. Weeds, at this season, will be very troublesome, where they have been allowed to drop their seeds.

The Fruit Garden.

Where mulching has been used for peach trees it should now be removed, as late peaches are seldom well flavoured, if the roots are excluded from the action of the sun and air during the period of ripening. It is also a great advantage to have the ground free and unshaded by any crop at this season. The effect of planting root crops, &c., more particularly in a wet season, is to keep the land cold and wet, when warmth and air are particularly required. To have peaches in perfection, they should be picked before quite ripe, and placed for a day or two upon clean, white paper, with a little clean, sweet hay beneath the paper. Good, ripe peaches will hardly lie on a hard substance without being blemished; and some of our best kinds, when nearly ripe, will not bear much handling. It will be of great benefit to peach trees to look over them and cut out some of the shoots which have borne fruit but have no terminal wood shoot; the remaining shoots will be greatly benefited by the thinning out. It is now time to make preparations for planting new orchards and filling up vacancies in old ones with young trees. In either case the ground should be well prepared—thorough drainage, manuring, &c.—without which no good results can be expected.

Strawberries grown in pots should now be well cared for, by placing them in an open, sunny situation, where they may have all the light possible; and do not allow them to suffer for the want of moisture at the roots. In cleaning strawberry plantations, be careful to injure the leaves of the plants as little as possible. Avoid deep forking or digging between the rows, which injure the roots, besides the strawberry prefers a somewhat firm soil.

Hardy fruit should be gathered soon as ripe, which may be known by the seeds turning dark and the stalk parting readily from the tree. Pick the fruit with great care, and keep carefully apart from the rest all that fall during the process of picking. Pick only during dry weather, and store in the fruit house at once. We do not believe in the sweating process adopted by some. The fruit room should be in a dark place, capable of being freely ventilated, but generally admitting but a trifling current of atmospheric air; and it should be located in a cool place, but safe from frost. Arrears should now be brought up or the morning frosts may overtake something which has been neglected.

Refer to our remarks for the last two months, and be upon the alert to do whatever has been neglected hitherto.

The Flower Garden.

Scarlet, Rose and White Flowering Geraniums.—Now is the time to propagate them in order to have good, strong plants for planting in the beds and borders next year. Where any quantity of these useful plants are required, pots may be dispensed with altogether; and even where they are grown in small quantities they will be found to do much better in boxes than pots—in which way large numbers may be kept in a limited space. There are many advantages to be gained by adopting this system in growing geraniums, heliotropes, verbenas, and other summer bedding plants in boxes; one is a great number of plants can be wintered in a small space, and we find the plants to grow much better when planted from boxes than from pots. The boxes which we use are made by ourselves from well seasoned strips of wood, about six inches wide and one inch thick, cut up into two feet lengths for the sides, and one foot for the ends. For the bottom we use strips two inches wide, with an opening about half inch between the bars, so that all superfluous water may pass away. Such boxes are what many people would call rough; admitted they are of a very different description from those made by the skilled carpenters, but they answer the purpose admirably, and have been in almost constant use from two to three years. In preparing the boxes we place about one inch of

drainage in the bottom, for which we use charcoal—when procurable. Lumps about the size of large walnuts are placed over the openings at the bottom, upon which are put smaller pieces. The remaining space is then filled up with light, sandy soil, with a little clean river sand upon the top, after which the cuttings may be planted, the soil having been made moderately firm. We are careful to select good, firm cuttings, planting about seventy-five in a box, pressing the soil firmly around each cutting. After the box is full the operation is finished by giving them a good watering, which will consolidate the soil about the cuttings. We leave the boxes, when filled, exposed to all weather until the appearance of frost, when they are placed where they can be protected from cold rains, frost, &c. By the end of October the cuttings will have made good roots, when they should be placed in their winter quarters. The best place for this purpose is near the glass in a greenhouse cold-frame, or the windows of the dwelling, and where the air can be kept dry and circulate freely about them. In this situation they may remain, being protected from frost, and watered when necessary until the middle of March.

Those who have the advantage of a greenhouse, and would like a rich display during the early spring, should lose no time in making selections of plants adapted for the purpose, and of superior character, as good form, abundance of flower buds, &c.—azalias, rhododendrons, hybrid, perpetual and tea roses. The latter stand first in the list of our especial favorites for winter and early spring flowering—more of them anon. Our beautiful native kalmia latifolia will be found to add greatly to the spring display, and pots of mignonette to the diffusion of a most gratifying fragrance. Such things should be obtained forthwith, potted and placed in a warm part of the garden, from whence they can be introduced from time to time into the greenhouse from early autumn until the end of January.

Hyacinths, tulips, crocus, and other bulbs, for forcing, should be potted towards the end of the month. The principal cause of success is having the pots filled with roots before the top commences to grow. The soil we have found the above to flourish in consists of half leaf mould or well decomposed cow dung, with a small portion of river sand. The quality of the soil is not of the primary importance which many believe in, as the flower stem depends, in a great measure, upon the organised matter stored up in the bulb, and brought to perfection under the influences of heat, light and air. The bulbs, soon as potted, should have a good watering and be plunged in a frame and covered about six inches deep with sawdust or tan bark. When the pots are well filled with roots, and the tops commence to grow, they should be taken out of the frames and placed in the greenhouse or upon the window sills of the sitting or other rooms. They will grow much stronger and bloom much finer when exposed to gentle heat and supplied with a circulation of air.

The propagation of heliotropes, verbenas, salvias and other budding plants should be proceeded with. A surplus stock of such plants should always be provided, as the general utility of these plants, for decorative purposes, is unquestionable.

Chrysanthemums should be carefully trained and staked while the tender shoots will bear it.

Budded roses should be carefully attended to by removing all wild shoots growing up from the roots, and by giving each plant a bountiful supply of manure water.

The general routine of mowing and clearing walks, removing decayed flowers, &c., must be pursued.

Violets may now be potted or planted in a frame. Mignonette sown in pots for flowering in winter and early spring.

Do not neglect introducing into the house any pot plants which may have been exposed during the summer. After the latter part of the month it will be dangerous to trust tender plants to the weather. Let each plant be carefully examined, and any defects of the draining of the pots be remedied. Clear off moss, remove insects, and have the plants neatly tied to stakes. Take especial care in training that the bottom of the stakes do not become bare of foliage from the rim of the pot upwards, for upon a well regulated and bountiful supply of foliage depend the beauty of the plant.

VERMIN IN HEN HOUSES.—You should keep your hen houses clean and sprinkle lime or ashes upon the floor, and you will not be troubled with lice, unless they are bred elsewhere, and brought in upon the fowls. Sitting hens often, in June and July, when allowed to sit so late, breed lice in their nests, and we have destroyed them by sprinkling powdered sulphur in the nests and under the hens' wings, and also among their wings. Their perches should be cleaned, when the house becomes infested with lice, and whitewashed, and a general cleaning and application of sulphur to nest boxes will cause the vermin to disappear.

For the "American Farmer."

Associated Capital.

MESSRS. EDITORS: Permit me to make a few remarks on the article of "Sec'd District," in your July number. What "Sec'd District" says about able and honest superintendents, I will admit as correct. I had not been thinking about our planters, of whom a great many have been reduced in fortune to such an extent as to make them accept a similar position. But with regard to the negro, I must still retain my opinion. Of course one year's experience would not enable us to judge correctly, but Second District forgets what I related in regard to Jamaica, where 35 years' experience sustain my views. Besides, I am sorry to say that this, the second year's experience in our country, is *by far worse* than the first year's. Last year, we could obtain tolerably good labor in sufficient number at moderate wages, but this year it has been next to impossible. The fact is, that I, as well as all farmers I have interrogated on this subject, never have worked a more worthless gang of hands than this year. At the same time they are scarce, although, if you go to town, you find able-bodied negroes loafing about in astonishing numbers. Last year we paid $10 per month, with rations, house, garden and fire wood, and this year we thank God if we can get a trifling hand for $12 per month, or at 50 cents and rations per day for a few days at the time; and next year, gentlemen, it will be still worse. To illustrate the above, I will give you my own experience this year. During early spring, I hired about fifty hands, none of them returning to take up their contract; so spring found me with two miserable hands, where I ought to have had eight at least. Spring being late, the consequence was that I got behind hand with work, and if I had not, by mere chance, picked up three more hands, I would not have been able to run my teams. As it was, I had to throw out 75 acres, which I otherwise would have planted. This is in the vicinity af a city, how much worse is it in the interior of the country? I have met farmers living 40 miles from town, whose larger part of their last year's corn crop still stood in the field on the first of March, not being able to procure labor, and others who shipped their last year's corn in May and June, because they could not reach the market earlier. This certainly looks not like improvement. I repeat, that any man or corporation who invests largely in any enterprise, BASED on negro labor, will lose money as sure as there is a day coming. The only salvation I see is in immigrants. Offer them the inducements I held forth in the article on emigration I sent you; engage active and able agents to procure them. One immigrant will do as much work as two negroes in general, and if you have made your interest theirs, you can depend on them. I beg you to excuse these lengthy remarks, but I consider it every man's duty to try to prevent his fellow man from indulging in ideas which *may*, and I firmly believe *will* prove fatal to his interest. L. A. HANSEN.

Clifton, Fairfax Co., Va., July, 1867.

Walking Horses.

The best gait a horse ever had for every day use is a good walk. It is a gait that not one in ten posesses. Colts are not trained to walk in all the Eastern States. Young America wants more speed. Kentucky has more good walking horses than any other State, for there horse back travelling has long been in fashion for men and women over a country where muddy roads, at some seasons, rendered any other gait impossible, and so horses have been bred for the saddle and trained to a walking gait. This is also the case in all the Western States, and perhaps might have been so in New England when our grandmothers rode to meeting on pillions behind our grandfathers. But one horse wagons have put horseback riding out of fashion, and now a good walking horse is more rare than one that can trot a mile in 2.40.

At the Springfield (Mass.) Horse Show of 1860 the writer was one of a committee to award prizes to the best two walking horses. Out of seventeen entered, the committtee found but one which was considered a first rate walker. This was a Morrill mare, which walked five miles an hour with ease. Two others were fair walkers, and the others knew no gait that could be called walking. At the N. York State Fair the same state of facts was again developed. A letter from Wisconsin says: "I think horses trained to walk fast would be a greater benefit to farmers in general than fast trotters, as almost all of his work has to be done with a walk. I once knew a man in Massachusetts who, before the railroads were built, kept from two to four teams at work on the road, and never allowed them to trot at all, and made the distance in quicker time than his neighbors, who made their horses trot at every convenient place. He said that when a horse commenced to walk after a trot, he walked much slower than his common gait if kept on a walk, and thereby lost more than he gained. Will farmers think of this and pay more attention to walking horses? —*Solon Robinson.*

What Chemistry Teaches.

"How wonderful is the fact, that a large proportion of the material of the grains and fruits, and grasses which we gather into our barns and graineries, is composed of the constituents of common air! Perhaps it is even more wonderful, that the solid and inflexible fibres of the oak, the hickory, the beech, and scores of other woods, exceeding even these in density and hardness, are formed from the unstable medium we breathe, and which seems so utterly devoid of materiality and solidity.

"Chemistry alone is capable of teaching us the philosophy of that aggregation of atoms by which plant organisms are developed and increased, until full maturity is attained. It teaches us respecting the office the soil, the rain, the air subserves in accomplishing the work; and the information it furnishes is minute, wonderfully exact, and full of interest to the student. It teaches the interesting fact that the soil originates from the solid rock which constitutes the crust of the earth, and explains the nature of the forces which have produced crumbling and decay in the same. Its teachings are so important in this particular, that we will stop a moment to consider them.

"If we procure from one of our hills a piece of granite of either of the different varieties, and finely pulverize and analyze it, we shall find it to contain all the constituent elements of which all other rocks consist. Hence we shall be led to conclude, that they all originate from the granite; that this is the parent rock of quartz, talc, serpentine, feldspar, mica, etc., from the crumbling of which our soils have been formed. By the decomposition and crumbling of the mica and feldspar in a particular region, one kind of soil is formed; by limestone in other localities, another kind; and hence it is plain to see that a variety of soils must result from the disintegration of the different kinds of rocks. A very clear conception of the work of exfoliation may be obtained by supposing an individual to have been placed upon our planet at a time when it was hard, impentrable mass of rock. Suppose him to have lived through all the great epochs of time until the present, and to have witnessed the general metamorphosis from barren sterility to extreme vegetable luxuriance. Suppose him capable of witnessing the gradual crumbling of the adamantine masses, and the formation of cultivatable soils. If the agencies in past ages were the same as are now at work, he would have seen that every flash of lightning shooting athwart the sky, by decomposing the atmosphere, produced a trace of nitric acid, and that this, falling upon the rocks, aided in the work of separation. He would have seen that the carbonic acid of the air, the rapid freezing and thawing, the mechanical effects of rain, the attrition of dust moved by winds, all conspired to reduce the seeming defiant quartz, and talc, and gneiss, to a finely subdivided powder, capable of sustaining vegetable life. The chemistry of these atoms of dust is very easily understood. The Creator, in the beginning, made use of about sixty different kinds of materials in constructing our planet, and he selected only ten or twelve of these from which to form all kinds of rocks. It follows that the dust atoms must be made up of the same material as the parent rock. From them the mineral food of plants is obtained. The inorganic or mineral food which plants require, are principally silica, lime, magnesia, sulphur, potash and soda. Their presence in the soil is indispensable, as without them no plant growth could continue. A plant has as capricious an appetite for its mineral food as a human being has for his food, and each variety calls for its appropriate nutriment; and if nature does not supply it sufficiently in the soil, or if we do not step in and furnish it, it famishes and dies. There is as much propriety in saying, when we observe a stalk of corn struggling for existence in an impoverished soil, that it is starving to death, as there is in saying that an animal famishes when food is withheld. Let us observe still further the striking analogy between plant life and animal life.—I have said that both have their appropriate, chosen food. If we place before a cow or horse some forms of food man requires, and withhold hay and grain, they will ultimately perish. Thus it is with vegetables. If we plant peas or beans upon a field where no trace of lime is found in the soil, although it may be rich in minerals which other plants would live and thrive upon, they will as certainly famish as though we had sowed them in the granite quarries of Quincy, or among the glaciers of the Alps. To attempt to feed the different varieties of plants upon the dust atoms of a single kind of rock, would be as absurd as to gather the different races of men together, and endeavor to sustain them upon the watery fruit of the tropics. While the seething negro would satiate his appetite, and grow lustly upon the watermelon and the banana, the greasy Exquimaux would cry aloud for his train oil and blubber; and, if withheld, he would probably die from the cravings of unappeased hunger. A plant is like an infant, as respects the preparation of its

food. It has no teeth to masticate, no salivary glands to pour out diluting fluids to render digestible its rocky aliment, and yet it can receive it only in a liquid, soluble form. Its mouths are microscopic, and nothing minutely subdivided can pass their portals.

"Farmers are men nurses, laboring among their plant children, pulverizing and moistening their food, just as the female nurse, within the precincts of the children's nursery, is busily employed in preparing and rendering easily digestible that which the appetite of her little troop so urgently demands.

"Nature does much by the activity of those forces already alluded to, in preparing the inorganic food of vegetables. Although the rocks have crumbled into powder of varied fineness, and the mass of this constitutes the soil, yet the largest portion is still very far from being fine enough to be appropriated by plants. Minute atoms of granite, of limestone and feldspar, scarcely perceptible without the aid of the microscope, pervade every soil, and must be further acted upon by carbonic acid from the air, by rain, by mechanical forces, &c., before they are of any use to our maize, plants, tubers, grains, or vines.

"It will be clearly understood, that we may possess land rich in the mineral substances which a particular grain requires, and yet, after successive crops, it may languish and fail for the want of a substance already in the soil, but which is not in a condition to be used by the grain. In this we see the connection of chemistry with the business of the farmer in the tillage of his lands. He plies vigorously the plough, the hoe, and the cultivator; he digs, he pulverizes, he reverses the condition of the soil; bringing up to the surface that which was buried, and burying that which was upon the surface; and does he suppose that the vigor he thereby imparts to the soil and plants is due solely to the mechanical effects of his labors? There are great benefits thus produced, which are far from being mechanical. It is indeed beneficial to loosen the soil so as to prevent binding, and aid in the percolation of water through it; but some of the greatest benefits of active tillage are strictly chemical in their nature. By stirring the soil, atmospheric air is let in; and the carbonic acid it contains fixes its corrosive teeth into those minute grains of rock, and rends them asunder. They are thus so changed, that instead of being rejected by the hungry plants, they are seized with avidity, and consumed. And, further, by tillage there are chemical effects produced in that part of the soil not mineral or inorganic, by which decay or putrefactive change is carried forward, and plant food produced in large quantities. Thus chemistry conclusively shows that, by mechanical labor alone upon a soil, nutriment is afforded which is equivalent to the application of manure, and with these facts distinctly in mind, the farmer need not be surprised at the energy with which his crops shoot forward after the application of the hoe and cultivator.

"It was chemistry that taught the husbandman the importance of subsoil ploughing. There are many farmers who are unable to overcome their prejudices sufficiently to try the experiment of deep ploughing upon their soils. They suppose the whole virtue of their lands lies in the black mould or humus upon the surface; and if they go below, and bring up sand and yellow or pale earth, and mingle with it, of course it must dilute and impair its fertility. They certainly know that their soils are superficial and weak enough to without going down to bring up that which cannot sustain, as they suppose, a blade of grass. They reason thus because chemistry has not taught them its important lessons. How important to remember that that which lies deep below the mould came from the rocks, and is rich oftentimes in their mineral constituents. It needs only to be brought up to the surface, so that air and rain can reach it to promote chemical decomposition, and fit it for important plant aliment.

"Chemistry teaches that plants do not obtain all the elements of their growth from the mingled rock dust and humus constituting the soil. The atmosphere comes in for a share in rearing the structure, and the aid it renders is voluntary and entirely independent of help from the husbandman. He cannot promote his interests and increase his crops by endeavors to influence atmospheric action upon his plants. It is only through the soil that he is able to do this. Plants derive their carbon, or charcoal, chiefly from the air. The great bulk of all plants is carbon, and consequently we see how important is the aid derived from that source.

"How few of us call to mind the fact, as we sit around our comfortable hearth-stones in the long evenings of winter, and witness the gradual transmutation of the blazing pile of wood into black lustrous charcoal, and then by further combustion, apparently into a heap of ashes, that there is in the one a constituent of the very winds from which we are so effectually sheltered, and in the other, a portion of the soil abstracted from our fields. I am perplexed to

understand how any one can witness these wonderful changes from day to day, and not have sufficient curiosity awakened to be led to interrogate that beautiful science which is competent to answer every question and solve all difficulties.

"The facts as stated are certainly paradoxical and difficult of apprehension. There is no charcoal in the earth, none in the air; and yet, if we allow fire to act upon a bit of the whitest wood, or a grain of wheat, or corn, an apple, or starch, it is always produced. Does fire produce it, manufacture it; or does it simply develop what was positively in these substances before? Chemistry affords an answer to the question. Suppose a good house-wife places in her heated oven an apple—a potato, a loaf of bread, or any vegetable substance will serve the same purpose—and then, amid the multiplicity of household cares it is forgotten, and when examined, it is found done, not *brown*, but *black*. The oven has inadvertently acted the part of a charcoal manufactory. The apple has disappeared, and in its place is found a dark and crispy shell. In its growth, the apple took from the earth its gaseous elements, its hydrogen, oxygen, and also its mineral food. From the air principally it procured its carbon, in the form of carbonic acid, which is a gaseous acid composed of one atom of carbon united to two of oxygen. Thus united to oxygen it exists in the air, and although itself always intensely black, except when in a crystalized state, its color is not detected by the eye. We may perhaps be led to conclude that the apple, in common with all other vegetable substances, is ashamed of the color of its carbon ingredient; for before it can appropriate it to itself, it must first expel its two oxygen attendants, and thus expose its hue; but it instantly so blends and combines it with the other elements, that we are unable to see it until that merciless disorganizer, heat, drives off again its more fickle and volatile companions, and then the sable element is seen in all its nakedness. The undue heat of the oven has done this. While the oxygen, hydrogen, and nitrogen, ingloriously fled, as the flame curled around the iron dome, black carbon remained faithful to his post. But let us try his courage a little further; let us see what curious results will follow, if we apply flame to the crispy mass. And now we see changes and new combinations wonderful to behold. One of the substances, oxygen, which fled so precipitately from the oven, now seems to repent of its inconstancy; and, as the flame grows more intense, it rushes into the very centre of the conflict, not singly, atom by atom, but in pairs, two individual atoms together, clasping one of the carbon; and thus the sable bridge, again married, not to one oxygen bridegroom, but to two, floats off upon its bridal tour through the air. But such unnatural unions must always prove bad, and of short duration; such is the result here. The united parties are acid from the start. Thus combined, they constitute, in fact, carbonic acid, and the unhappy union continues until some beautiful plant or flower, in seeming pity for the parties, seizes them in its tiny embrace, and with one strong effort effects its separation, sending the disunited atoms of oxygen away into space, and appropriating the carbon to itself, to aid in its extension and growth. When the charcoal is burned away, there remains a small quantity of ashes, the mineral food of the apple derived from the earth. We venture to adopt this method to illustrate some of the marvellous changes incident to the growth and destruction of all vegetable organisms."—*Chemistry of the Farm and the Pea.*

Horse Remedies.

HEAVES.—There have been various opinions expressed by vetrinary surgeons in relation to the heaves, but we believe it has become a settled question that it is a disease, however, which cannot be completely cured. The severity of the of the disease, however, can be materially mitigated, and the following will be found worth trying: Mix equal parts of pulverized borax and saltpetre, and give the diseased horse a tablespoonful twice a day; and every other day, a spoonful of sulphur. Give also half a spoon-ful of copperas twice a week. Continue this mode of treatment five or six weeks.

WOUNDS ON HORSES.—One of the best washes that we know of for ordinary wounds on horses is to take one quarter of a pound of saltpetre, half a pint of turpentine, and put them into a bottle; shake up well before using; apply to the wound three times a day with a feather. This we have heard highly recommended from reliable sources.

SALT AND ASHES FOR HORSES.—Those keeping horses should, twice a week, throw in a handful of salt and ashes. Mix them by putting in three parts of salt to one of ashes. Horses relish this, and it will keep their hair soft and fine. It will prevent bots, colic, etc. A little ground sulphur mixed with salt and ashes, and given once in two or three weeks, is also beneficial. All domestic animals will be thus benefitted.—*Turf, Field and Farm.*

Four Years' Experience in Sheep Raising.

EDS. PRAIRIE FARMER: Your special correspondent, "Wool Grower," has been engaged for some six or eight years past in talking up in your columns the beauties and profits of wool growing. Being taken by his way of putting the thing, some four years since, I "went into"—as "Wool Grower" says—sheep. I know not whether he would class me with "Tom" or "Jake," but as I am superlatively disgusted with sheep and the sheep business, I presume he woald set me down for a close neighbor of Jake's.

I did not buy sheep at as high figures as did many other men at the same time, and I bought better ones than many others did for the same money. I believe I have fed and handled them with all a "Tom's" care, but the thing don't come out as I was led to expect by W. G.'s ciphering. He used to tell us that in a tolerably good sized flock a man ought not to lose over five per cent., and in a large flock not over ten per cent. in a year. I started with 1400, which, perhaps, might be called a large flock; now I have never been able to keep my losses anywhere near as low as ten per cent. I wonder if W. G. ever kept, on paper, an account of every sheep which he lost in a year?

As a fellow-sufferer and neighbor says, "Sheep *will* die in spite of thunder." During the summer they do not go so very fast; in fact, if you do not put each one down on paper the very day the carcass is discovered, you will be inclined to think, in the fall, O, I have not lost many; perhaps half a dozen. In the early part of winter and clear up to March, you will feel as if you were getting along swimmingly, but don't lay any flattering unction to your soul until you reach the Ides of March, the same Ides which Cæsar was to beware of. About this time perhaps you think it well enough to begin entering in your book, dead sheep. Like an innocent, you think, once April comes in and your flock can get a bite of grass, the mortality of sheep will cease. The next two months undeceive you terribly, and you feel as if sheep laid down and died from sheer spite.

When "lambing-time"—I believe that's the word—arrives, you are expected by all good authorities to raise 75 per cent. You are just green enough to keep a book account here again, so as to see whether you are doing what is expected of you. For awhile you feel first rate; your book reads, so many ewes have lambed, so many lambs living; in a week or so you have to go back to your book and chalk out some of those set down as living, on account of the natural perversity of the whole sheep kind, which will persist in dying without any show of reason. Putting down, rubbing out and altering, you run your now badly speckled book up to the time when all have come and they are ready for "trimming." On finishing this job you proceed to count your pile of tales; as the pile diminishes, how your face lengthens! "Only so many!" in a mournful tone of voice; then you consult your book; book says *so* many; then you recount your pile of tails, and continue to glance from book to tails until your head swims. Worse than all, you reflect, they cannot be considered raised as yet, but two or three months must elapse before weaning-time. At weaning-time you take a fresh count,—have given up book by this time,—and set down to figure your year's increase. The number of increase has to be expressed by the algebraic sign of minus before it.

But I won't particularize any farther; it is sufficient to say that in my four year's experience I have never found anything to come out as I had been led to expect by enthusiastic wool-growers. My losses have been greater; my per centage of lambs less; my weight of clip less; the price obtained for my wool less, and I have been generally and particularly disappointed. I have discovered, among other things, that no farm will carry as many sheep as men tell (for I forget how many "Wool Grower" said a farm would carry) to the acre, and I have also learned that a pasture ought not to be stocked with half the number we meet with in agricultural papers. Especially is this true in dry seasons. Sheep bite so close that when a drouth comes, it uses up a pasture much worse than when the same pasture is stocked with as many cattle as it ought to carry. I have about come to the conclusion that one sheep will eat, of grass, as much as two steers.

When it comes to marketing wool (and I am glad I can agree with Wool Grower on one point) I have found a great drawback, not, as he says, "in the manner of marketing," but in the market itself. I find that I am dependent on the mere chance that one or two buyers may come to my barn, or else on the honesty of some commission merchant to whom I may send it to sell for me. Even in the latter case, there are times when, for two or three months in succession, no buyer seeking wool enter his lofts. How is it with other crops? I can sell my wheat or my corn to a dozen buyers, right at home, *every day in the year*, or I can send it to any large market and sell it to a thousand buyers, on every day in the year. I can sell my cattle—either stock cattle or fat cattle, and my hogs, twenty

times, where I can sell my wool crop, or a flock of sheep, once. My cattle and my hogs are not turning into "culls," every two or three years, as are my sheep.

Your sheep stock is as fragile as china-ware, and as perishable as strawberries. As to your wool market, you are not much better off than those men who have bought high-priced Cashmere goats, the wool of which is said to be worth from eight to sixteen dollars per pound—if one could only find the man who buys it. Some say it is worked by a factory in Edinburgh, some in Paris, but I never have found the man who could tell which.

I had been led to expect great things of the wool and woolen tariff passed last winter. I expected more from it for the reason that it went into effect immediately. We see now how much it affects the price of wool. Old sheep men tell me that I ought not to expect much from it this year, from the fact that the country was filled with woolens previous to its passage. They say hold on until next year, and then you will see. I shall "hold on," because I have to, but I don't expect too see any benefit from the tariff, because I calculate there will be no tariff of that sort a year from now.

Next winter the free trade interest in Congress will say, "We passed this tariff last winter particularly to help the wool grower;" it has not benefited him the "first continental." Mr. McCulloch will say, "Just so, gentlemen, nor have I been able to get any revenue from wools or woolens."

Well, I have got sheep to sell, and so have nine-tenths of the sheep owners in Illinois. If we can sell out, or give out, or kill out, or let die out, of sheep, I suppose it will be all the better, in a year or two, for those happy wool growers who, it seems to me, keep sheep, not because they find them profitable, but because they are fascinated by, and in love with the stock.—A. R. H., SELBY COUNTY.

Beneficial Effects of Loosening the Soil.

The following extract from "Fuller's Small Fruit Culturist," may be read with profit, at this particular season, as we appear to be this year in a dry season particularly, as compared to the two previous ones. The matter of stirring the soil is an important one, and we fully endorse all that the writer so graphically portrays:—*Prairie Farmer.*

"Deepening the soil is not wholly for the purpose of furnishing more plant food, nor to facilitate the downward growth of roots, but it is principally for the purpose of disintegration, and making it of such a consistency that it will be capable of retaining a sufficient amount of moisture at all times to nourish and supply the plants growing therein, but not enough to be detrimental. Rain water, as is well known contains gases that are beneficial to plants, and if the soil is in a condition to allow it to pass through it, a large portion of these gasses will be retained, but if the surface is hard, the water either runs off or remains until it evaporates.

"Again, a soil that is loose and friable, admits air and with it moisture. To prove this fact, we have only to take a piece of glass or polished steel, or any similar substance, and place it in an ice-house where it will become cold; then carry it into the open air, and in a moment it will be covered with water condensed from the atmosphere. Now, we know that this moisture did not exude from the glass, therefore it must have come from the air. By stiring the soil, and placing that which has become heated underneath to warm the roots, and bringing the cooler portions to the top to condense the moisture, two objects are obtained: besides loosening the earth that it may be the more easily penetrated by the rootlets, it at the same time admits the air charged with moisture for their nourishment. The benefit derived from frequent stirring of the surface soil in dry weather, especially if it be of a compact nature, is mainly derived from the admission of air containing moisture. Many cultivators appear to think that all that is required of them is, to keep the weeds from growing among their plants, and they never stir the soil except for this purpose; but our best cultivators have learned that frequent moving of the soil is beneficial to all crops, especially in time of drouth. If any one doubts that soil can be made moist by frequent stirring, let them select a piece of ground under some open shed where no rain has reached for a year or more, break up the soil and pulverize it finely; then stir it and turn it over every morning for a week or two, and it will become quite moist, while a similar soil in the open field, which has not been stirred, will be parched and dry. Mulching the surface with straw, leaves, or similar materials, is often very beneficial, especially to plants whose roots do not penetrate deeply. The mulch not only assists in preventing evaporation, but insures condensation of moisture from the air which pass freely through it to the soil.

☞ The Viceroy of Egypt is the owner of more than one hundred steam ploughs.

The Tobacco Worm.

The following very interesting description of the habits of this worm is given by Dr. Asa Fitch, Entomologist of the New York State Agricultural Society:

This is currently supposed to be a new insect here at the North, unlike anything which we previously had, and that its presence here is due to the extensive growing of tobacco which has recently been commenced. It, however, is the same worm which, from time immemorial, we have been accustomed to meet with in midsummer upon our potato vines, and with which we have become more familiarly acquainted from seeing it so frequently upon the tomato vines ever since this vegetable came into general cultivation in our gardens. And it has obtained the names of potato-worm, tomato-worm, and now tobacco-worm, as it occurs upon one or the other of these plants, most persons supposing it to be a different insect in each case. These three plants are closely related to each other, all pertaining to the same natural order, (SOLANACEÆ,) and this insect feeds upon each of them without appearing to manifest any preference for one over the other. It feeds equally well, also, upon two full-grown worms upon a vine of the other species of the genus *Solanum*, to which the potato pertains. I once met with bittersweet (*Solanum Dulcamara*) which was growing so distant from any potatoes that it was evident they could not have strayed from that plant, but must have come from eggs which the parent had laid upon this vine, knowing it to be perfectly adapted for nourishing her young. It is probable that it can also nourish itself upon the stramonium, henbane, and most other plants of this natural order.

The moths do not all make their appearance simultaneously, but come out one after another, mostly in the month of July, though continuing to occur abroad until the frosts of autumn have destroyed the flowers from which they are fed. During the day time they remain at rest, hid from view, and come out in the evening to feed and lay their eggs. From its thus appearing abroad upon the wing at the same hours when the musquitoes are most numerous and annoying, Drury states that the southern species has in some parts of the West Indies obtained the name of the Musquito Hawk, it being also supposed that it is attracted forth at that particular time in order to feed upon these petty torments. This, however, is a great error. The sole food of these moths is the honey of flowers, for obtaining which they are furnished with a remarkably long, slender tongue, which, when not in use, is coiled up like a watch spring, and concealed between the palpi or feelers. It may be unrolled and drawn out by inserting a pin into the coil, and when fully extended is five or six inches in length. Thus it is especially adapted for probing flowers which have long, slender tubes, such as the tobacco, stramonium, petunia, &c., whose nectaries are beyond the reach of bees and other honey-gathering insects. The moth resembles a humming bird in its motions, and also in the sound made by its wings as it is hovering around flowers and sipping the honey from them. The tongue is fully extended at such times; and thereby the moth is poised on its wings at a distance of some inches from the flower on which it is nourishing itself.

Its eggs are probably placed on the underside of the leaves of those plants on which its young feeds. The worms which come from these eggs are voracious feeders, consuming a large quantity of foliage and growing rapidly, whereby some of the earliest ones attain their full size by the end of July; but it is during the month of August that they are present upon the plants in the greatest numbers. They move about but little during the daytime, and being of the same green color as the stalks and leaves, they are difficult to discover. Usually, the presence of one of these worms upon our tomatoes is first indicated to us by the large, black pellets of excrement which it drops, some of which frequently lodge in the forks of the stalks or adhere to the glutinous hairs of the plant. These pellets are of a short, cylindrical form, and deeply grooved lengthwise, and the worm, as if to guard against its presence being betrayed thereby, when it is crawling along the stalks, if it chances to come to one of these pellets, pauses and takes it up in its jaws and drops it to the ground.

When the worm is grown to its full size, it leaves the plant on which it has hitherto been living, sometimes wandering away to a distance from it, and roots down into the ground to the depth of some inches below the surface. It here becomes quiescent, and casting off its larva skin it appears in its pupa or chrysalis form. By this change it is diminished a third in its size, and is now of an oval form, four times as long as thick, and covered with a hard, crustaceous shell, of a glossy, bright, chestnut color. This pupa of the tobacco-worm is particularly curious from having its forward end prolonged on one side into a long, slender limb, which is bent backwards, reaching to the middle of the body, where its end touches and is firmly soldered to the surface, thus forming a kind of loop resembling the handle to a pitcher—this being the sheath in which the tongue is enclosed, which in

the perfect insect becomes developed to such a remarkable length. In this state the insect remains through the winter and spring. It is currently stated that it lies so deep in the ground as to be beyond the reach of the winter's frost, but this point requires further investigation, for frequently, in harvesting potatoes, this chrysalis is disinterred, lying only a few inches below the surface. Every laborer who has been much employed in digging potatoes, and every boy who has been assigned the task of picking them up, will recollect having noticed it—the curious loop or pitcher-like handle on one side having particularly drawn his attention to it. In the garden, also, where tomatoes have been grown, I have met with it only slightly underground. The subsoil, moreover, beneath where it is loosened by the plough, is, in most situations, so compact and hard that it would be a very arduous labor for the worm to penetrate downward in it twelve inches or more; and for the moth, after it comes out from the pupa shell, to force itself up such a distance through this compact subsoil, would seem to be quite impossible. We know, furthermore, that the pupæ of the other lepidoptera, several of them equalling this in size, pass the winter, some in cocoons elevated above the ground, others upon the surface, others slightly under the surface, where they one and all become congealed by the winter's cold without impairing their vitality. I am therefore led to conclude that the repeated instances in which I have met with this pupa lying but a few inches within the loose surface soil were not abnormal, but that this is the depth to which it is commonly buried; and that previous accounts, which represent it as lying deep in the ground, beyond the reach of the frost, are erroneous. When the warmth of spring has penetrated the earth sufficiently to quicken it again into life, its internal parts continue their growth and development, until the perfect insect becomes formed within the pupa shell. This shell then cracks open and the moth withdraws itself from it, crowds its way upward through the ground, and comes forth in its perfect form.

PRESERVATION OF EGGS.—Le Betier (a Parisian paper) recommends the following method for the preservation of Eggs: Dissolve four ounces of beeswax in eight ounces of warm olive oil, in this put the tip of the finger and anoint the egg all around. The oil will immediately be absorbed by the shell, and the pores filled up with the wax. If kept in a cool place, the eggs after two years will be as good as if fresh laid.

Making Lawns.

We recently saw a letter of Mr. H. W. Sargent, now traveling in Europe, to a friend in this country, in which he expresses disappointment at the appearance of the lawns there, and his increased estimation of our own.

There is no doubt but that we have progressed considerably in the art of making this—the great feature of a first-class garden—and that Mr. Sargent, who has been himself conspicuous for the attention given to the improvement of American lawns, and whose own at Wodenethe has been the theme of many well-merited newspaper articles, should have a reason to feel satisfied with our attempts, is cause for much encouragement.

We have so often recently had to refer to the great harm done to American horticulture by the rehashes of foreign books, that we need only now say that in this matter of lawn-making alone we have suffered immensely—so long as we sowed the crested dog-tail, the vernal, and the fescues, generally recommended, we could have no lawn in summer; for, adapted only to cool and moist climates, they soon dried up under our summer sun; yet we find to this day writers following in the old track and recommend such rubbish.

The best admixture for a lawn in most parts of the United States is about one-third rye grass (*Lolium perenne,*) and two-thirds green, or as it is sometimes called, Kentucky blue grass (*Poa pratensis;*) by itself, the rye grass will not stand close mowing, the sun burns it out, with the other it stands well, and gives a live, glittery appearance to a lawn, no other grass will. For lawns which are to be machine mowed, Red-top (*Agrostis rubra*) is an admirable grass, as it will bear lower cropping, without injury, than any other.

In preparing land for a lawn, sub-soiling is of much value, for a loose sub-soil never gets so dry as one of hard-pan will.

In sowing in September or October, it is an excellent plan to add oats or rye, but the last is not so good as oats. The object is to afford a little shade to the grass, to keep it from thawing until the spring season naturally comes—otherwise it would be "thrown out" by continual freezings and thawings through the winter season.

Because the oat renders such good service to fall-sown grass, there are some whose imitative faculties are out of all proportion to their reflective ones, and who recommend to sow oats also with lawn grass in spring; no sensible gardener falls into this error. In the spring he sows grass entirely by itself.

Now there are two principles which are never thought of in lawn management by the best of lawnists, and yet are of great practical importance. One is that the roots of grass only penetrate the soil to about the depth that the plant extends in height, and the other is that continual cutting of green leaves weakens vitality.

So that, practically, if we let grass grow a foot high, its roots may penetrate a foot deep; but if we keep it cut down to a few inches, the roots will seldom go deeper down than that.—The value of this principle is, that when we wish a young lawn to go deeply down with its roots, we let it grow as much as it will; and one of the best ways of renovating a worn-out lawn is, to let it grow longer than it has been permitted to do. We are often asked how to make grass grow in shady places; what manure is best under such circumstances? And people seem surprised when we tell them the best manure is to let the grass grow without cutting.

So newly sown lawns should not be cut very early the first year. The object should only be to cut low enough to keep down oats, weeds, or anything that may grow stronger than the grass; for remember, that amongst the vegetables on a lawn, there is a continual struggle for existence, and that the strongest ultimately prevails over the weaker forms, and crowds them out. This principle is well illustrated in lawns kept closely mowed by machinery; small *spergulas*, *verohicas*, *arenarias*, &c., which could not live in long grass for want of light and air, get a chance afforded them by the grass being kept in check, and they thus get strong enough to often kill out the weakened grass altogether.

It will thus be seen that to make American lawns rival the famed ones of Europe, all that is necessary is a proper selection of varieties, a deep cool soil, and a regard to the depth of the roots, which is readily controled by judicious mowing, according as circumstances require it. —*Gardeners' Monthly*.

Coal Oil for Insects.

Your correspondent from Cleveland Tenn., in the June No. of the Monthly, gives us some interesting facts on this subject; his experiments do not seem to have been very satisfactory to him.

I should suppose it to be almost impossible to clear a bed of young plants of insects by the use of the syringe or watering pot, from the difficulty of getting the oil in contact with every part of the plant, but when plants are in pots, and can be immersed, oil is certain death to any plant insect. Last spring I tried it very extensively on a general collection of plants, consisting of Azaleas, Camellias, etc., and the experiment was very successful, a few plants only being scorched. I found a very small quantity of oil sufficient, using only about two tablespoonfuls in a large tub of water, the plants were then immersed and then plunged for the summer in a sunny place out of doors. It completely cleared them of all insects, Mealy bug, Scale, Green fly, etc., and in some cases of leaves, too, but not to any extent, or to any visible injury to the plants now. A more healthy lot of plants than they now are could not be wished for, and their flowering the past winter has been most profuse. A friend, who has also tried the remedy, tells me the danger is lessened by placing the plants in the shade afterwards for a few days.

I have found the use of oil unnecessary since the time recorded, from the absence of any insects on the plants. When they do again appear I shall certainly "oil them."—*J. M. in Gardener's Monthly*.

Grind The Tools.

Keep the tools sharp or they will not cut. A dull tool wastes time, and he who permits it to work when in that condition, is a dull fellow. The best turners are those who have the sharpest tools; the most successful surgeons use the keenest knives, and the most enterprising and energetic men in civil life are those whose wits have been early ground sharp, and whose perceptive faculties have been whetted by sore experience in early life. A dull tool is a useless implement, and a thick headed, unobservant person is the only one who should be found wielding it. The obtuse edge neither cleaves nor separates, but bruises and works off by attrition particles of the substance on which it operates. Grind up the tools and sharpen the wit as well; if one is keen the other will in all probability be in a similar state, from force of sympathy alone. A boy with a dull pocket knife is one who swings on the gate and who dodges his duty; he is one who in after life will be a dunce and a cumberer of the ground; he will add nothing to the world of science, neither will he take from it; his existence is merely animal, his thoughts and ideas, if he has any, wholly conventional. His comrade with a keen blade, makes models of machinery, or boats or steamers, and in time he becomes a Geo. Steers, or so developes his mother wit as to be a decided acquisition to the community. Let us have all the tools in good condition, sharp, trenchant, and always ready for service; then and then only will the result produced be equal to the time and labour expended. —*Scientific American*.

The Chemical Properties of Milk.

Milk embraces the essential nutriment principles of all forms of food, and when pure nothing contributes more to the physical health than it does. It is the first food of infants, and feasting on it alone these tender germs of humanity acquire strength and vigor of growth; through life its nutritious qualities are recognized; adults use it with benefit to themselves, and it sustains existence when old age comes to enfeeble the body and limbs. The composition of milk is, 1st, caseine, a rich nitrogenized material; 2d, fatty principles; 3d, a peculiar sugar; 4th, various mineral salts, principally consisting of phosphate of soda, phosphate of lime, phosphate of iron, and phosphate of magnesia; the potash exists in the form of chloride of potassium. These substances are held in suspension by water. The composition of caseine is identical with the muscular substance, and with the albumen of the blood; and in milk, we find this composition in a soluble state. Hence the feeble powers of the infant are equal to its digestion and assimilation, to supply the waste of energetic respiration, we find two non-nitrogenous bodies, butter and sugar; these, when in the body, are resolved into carbonic acid and water, and develop the necessary heat. As the body absorbs much lime in its construction, we find it in milk in excess of all other salts; and this ingredient enables the growth of the bones to keep pace with the growth of the body. The phosphate of soda, and the chloride of potassium, mingle with the blood and promote secretion, and give wonderful harmony to the chemical and vital changes of the system. "What," asks Dr. Nichols, "is man, or an animal, but a kind of chemical laboratory, where transmutation and changes in gross matter are going on constantly, in order that force may be developed, and the machine or body kept in motion? Is an atom of iron, or potash, or soda, any more sacred, or entitled to higher consideration, because it has happened to be absorbed from the rocks or dust by vegetable growths and taken into the body, there to be manipulated by the unseen chemist, and perhaps assigned, for a brief period, a place among the earthy or atmospheric constituents of the flesh? What is health but an undisturbed play of chemical affinities in the mineral organism? What is disease but imperfect chemical reactions, or insufficient supply of necessary chemical agents in the same?" The color, odor, taste and medical effect of milk, may be modified by the employment of certain articles in food.—*Nichols' Chemistry.*

Small Cheese.

There are some advantages in making large cheese—they take less bandage, require less labor in handling while curing, and the expense of boxing is less than when made smaller. To these may be added less waste in shrinkage. All these points are well understood by cheesemakers, and they therefore make an effort to retain the old styles. Unfortunately for them, the markets step in and reject the old styles, giving preference to the smaller size. They do not absolutely command dairyman to stop making large cheeses, but they say plainly, and have done all summer, "If you continue to persist in this course you must take a less price as a conseqnence." The time has been when large cheese would outsell the smaller; but it was not because of the size, but for the simple reason that the quality was generally better. When quality was alike, the smaller cheese have always been worth the most money. The reasons are obvious. The smaller cheese are more easily handled; there is less loss from breakage or accident; there is less waste in cutting; and they are more salable to persons purchasing for family use.

The factories should be provided with hoops, to make various styles, so as to suit the market. For exportation to England two styles are in favor—the Chedder, pressed in 15½ inch hoops, making a cheese about 12 inches high; and the flat cheese, about five or six inches thick, pressed in 15, 16 or 17 inch hoops. These latter are also desirable for the home trade. But the home trade desires yet another style of cheese, pressed in eight, ten and eleven inch hoops, and weighing from ten to twenty pounds. When the smaller sized cheese are made, they may be put up without bandage, and packed in square or oblong boxes, several together, thus greatly reducing the expense in getting them to market. A greater discrimination it is believed will be made the coming year than ever before, in styles of cheese, and both factories and public dairies should fix upon a style best suited to the market, which it may be desirable for them to supply. But one thing is certain, the day of large cheeses is over, and if factories persist in making such they must expect to be outsold by small family dairies, and and the tendency of this will be to break up the factory system, since farmers will not pay from one and a half to two cents per pound for having their cheese made in factories, and seeing the private dairies outselling them at one to two cents per pound.—*X. A. Willard.*

Never insult misery, deride infirmity, nor despise deformity.

The Farmer's Grindstone.

There is no tool so essential to the farmer as a good grindstone; and a very correct idea may be formed of the management of the farm, by the appearance of this homely but useful article. If the neighboring saw or edge tool factory has furnished one of its cast off "hubs," which is hung on a wooden shaft, and suspended in the crotch of a tree, or in a fence corner, you may rest assured that such a farm will not produce four hundred bushels of potatoes, or forty bushels of wheat to the acre. But such cases are rare, now a days, as this article has kept pace with the wonderful improvements in mowing machines and farming implements generally. The old fashioned, unfinished stone, with square hole and uncertain grit, has been superceded by the finished stone, with self-adjusting shaft, friction rollers and treddle; so that one person can turn the stone, and grind any ordinary tool without assistance.

In olden times, the only grindstones in use came from New Castle, in England; and although very good for some purposes, they were not suitable for farmer's use, the grit being too coarse. The Nova Scotia stones were next introduced, and found to be a great improvement on the New Castle. The Ohio grindstones are very largely used by the farmers and others throughout the West, although our Pennsylvania farmers prefer a good, blue, Nova Scotia stone; but recently a most excellent article has reached us from the shores of Lake Huron, having a fine, sharp grit, leaving a fine edge, and cutting pretty fast.

Hoping these remarks may induce our farmers to give this important tool the attention it deserves, a few hints how to put it in order may not be out of place.

1st. Always keep your grindstone under cover, as exposure to the sun's rays hardens the grit and injuries the frame.

2d. Don't let the stone run in water, or stand in water when not used, as this causes soft places where none exist; but allow the water to drip from a water pot—an old white lead keg will answer—fixed above the stone, and stop it off when not grinding.

3d. Clean off all greasy or rusty tools before sharpening; as grease or rust chokes up the grit; and always keep the stone perfectly round by razeeing it off when necessary; and finally, every farmer should have a good grindstone of his own, always ready for use, and no one should be so improvident as to waste the cost of a stone by running to his neighbors to grind his tools.—*Cor. Farm and Fireside.*

Seed Wheat—Plant Development.

The following is taken from "Liebig's Natural Laws of Husbandry." The author's remarks in relation to seed, and the development of the wheat plant, are of interest to wheat growers at the present time:

"The development of a plant depends upon its first radication, and the choice of proper seeds is therefore of the highest importance for the future plant. A crop of the same wheat, reaped in the same year, and from the same field, will exhibit differences in the size of the grains, some being larger, others smaller; and among both kinds, some when broken up will present a mealy, others a horny appearance, the one being more, the others being less completely developed. The cause is this—that the stalls in the same field do not all shoot into ear and flower at the same time, and that some of them produce seeds much more maturely than others; hence, the seeds of the one are far more developed, even in unfavorable weather, than the seeds of the others. A mixture of seeds unequalled in their development, or differing in the quantities of amylum, gluten, and inorganic matters which they severally contain, will produce a crop of plants as unequal in their development as the seeds from which they spring.

"The strength and number of the roots and leaves formed in the process of germination are (as regards the non nitrogenous constituents) in direct proportion to the amount of amylum in the original seed. A seed poor in amylum will, indeed, germinate in the same fashion as another seed abounding in it; but by the time the former has succeeded, by the absorption of food from without, in producing roots and leaves as strong and numerous, the plant grown from the more amylaceous seed is again just as much more advanced in growth, its food absorbing surface was larger from the beginning, and the growth of the young plant is in like proportion. Poor and sickly seeds will produce stunted plants, which again will yield seeds, bearing in a great measure, the same character."

So there are good scientific reasons, as well as practical ones, to urge a farmer to sow sound, plump seed. Let the mill blow out all it can, and use for seed what is heavy enough to fall in spite of the blast. Remember, also, that one grain of rye may produce in wheat thirty or forty stalks, and each stalk bear fifteen or twenty grains. Cockle, and other weeds, are just as productive. It won't pay to waste the strength of the soil, and deteriorate the quality of the wheat by sowing them.

The American Farmer.

Baltimore, September 1, 1867.

TERMS OF THE AMERICAN FARMER.

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BALTIMORE.

DEPARTMENT OF LABOUR AND AGRICULTURE FOR MARYLAND.—In the new Constitution of the State, just completed by the Convention, there is provided a Department of Labour and Agriculture, to the chief of which are committed, with enlarged sphere of operations, the duties now devolving, by law, upon the Commissioner of Immigration and the Immigration Agent, both of which offices are abolished. This provision was the suggestion of our friend, Maj. Giddings, of Anne Arundel, well known, in years past, to the readers of the *Farmer*, as "A well wisher," writing from "Severn Side." The article was sustained by him with great ability in the Convention, and brought finally to a very successful issue within a few days of the adjournment.

The thanks of the farmers of the State are due to this gentleman and his associates in the Convention, for instituting a department which, in the hands of a competent officer, may be developed into an instrument of the highest value to all the Agricultural interests of the State. Let them look around at once for the man best suited for the position, for, on this selection, will depend all the value of the office.

A FINE TOMATO.—A friend of ours in this city is indebted to Messrs. Ellwanger & Barry, of Rochester, for a package of tomatoes of a new variety, named by them the *Avian*. It is said by our friend, who is a *connoisseur*, to be of the finest quality; the flesh firm, with little core; it is slightly ribbed, of large size, and rather pink than red. We do not doubt this will prove a valuable addition to the improved varieties of this fine vegetable.

The Grain Crop of the Country.

It is not easy to make an impression upon public opinion when the expression is so general as that we have lately heard, in regard to crops of wheat and other grain. We do not fear, however, to put upon record the opinion, that the general estimate of the crops of the late harvest is a very exaggerated one. That, taking the country through, the crop is a fair one, and, of course, greatly beyond that of '66, may be admitted, and for this we should be very grateful; but that it is so far in advance of any crop, heretofore made, is, we believe, not true. There has been a great deal of failure, and partial failure, in wide-spread sections, which receive no notice in the great desire to believe, or to have it appear, that the crop of the season is an extraordinary one.

If consumers really got the benefit of the lower prices which are consequent upon this magnifying of the crops, there would be less reason to deprecate it. But the effect is to lower prices until the crops have generally passed from the hands of farmers, and later in the season to put them as much above a proper standard as they had been below. The consumer gains nothing, the farmer loses, and the speculator alone profits by such a falsification.

One of the most directly profitable offices of the Department of Agriculture at Washington, is the gathering of prompt and reliable statistics of the crops of the country, and giving them early publicity. We know there must be great difficulty in securing the services of reliable agents in this work, but we hope it will continue to receive the earnest attention of those who have charge of it, until a thoroughly effective system is brought into full operation.

The Mark Lane Express, which is the best of English authorities as to foreign crops, gives a generally unfavourable account of the crop prospects in England and on the continent.

☞ A Grand National Agricultural Exhibition and Horse Fair is advertised to be held on the National Race Course, Washington, D. C., commencing Monday, 26th day of October, and continuing up to the 15th of November. Premiums, lists in money and medals, amounting to $20,000, will be awarded.

All owners of running and trotting horses, and thorough-bred stock, and manufacturers of agricultural implements and mechanism, will have an opportunity of exhibiting on the grounds in the vicinity of the National Capital.

Book Table.

THE EDINBURGH REVIEW FOR JULY.—Contents—The Early Administration of George III; Agriculture and Prices in England (1259-1400); Professor Ferrier's Philosophical Remains; The Council of Constantinople; Indian Costumes and Textile Fabrics; Life and Speeches of Lord Plunket; Wine and the Wine Trade; Josiah Wedgewood; Burton's History of Scotland; The Military Institutions of France.

WESTMINSTER REVIEW FOR JULY.—Contents—Mimicry, and other Protective Resemblances, Among Animals; Lucius Annæus Seneca; The Last Great Monopoly; Lyric Feuds; The Future of Reform; Jamaica; The Religious Side of the Italian Question; Contemporary Literature.

BLACKWOOD FOR JULY —Contents—Brownlow's Part VII; The American Debt and the Financial Prospects of the Union; The Easter Trip of Two Ochlophobists; A New Life of Napoleon I; The Royal Academy and other Exhibitions; Cornelius O'Dowd; Praxiteles and Phryne; The Progress of the Question; The Death of Sir Archibald Alison.

These are all reprints, issued by the Leonard Scott Publishing Com'ny, 140 Fulton st., N. Y.

THE RICHMOND ECLECTIC FOR AUGUST.—The contents of this valuable publication are selections from the best foreign magazines: The Message of the Woods; The Rose; Concerning the Heads of Battering-rams; Annabel's Maying; Facetiæ; A Charm of Birds; The Women of the Latin and Germanic Races; Nothing Lost; Ashango Land; British Reserve; The Duchess of Orleans; A Holy Life and Death; Crown Jewels; Science and Art—a Crater in the Moon; Miscellanies from foreign magazines.

Rye.

We have sometimes wondered how it is that rye has maintained its existence on the face of the earth, and our own experience has not helped us to solve the difficulty. An exchange makes several points of recommendation of the crop. First, it says, it will produce good crops where oats will scarcely be worth the cost and labor of harvesting. We cannot deny this, as we never had the courage to try any kind of crop on such land. Again, it says, there is a peculiarity about rye—it does not sensibly exhaust the soil. If that be so, it may be because it is not a sensible crop, or such a one as a sensible man should be willing to grow. Again, it says, there are well authenticated instances in which rye has been grown for successive seasons on the same piece of land, without manure, and the crops instead of diminishing, have actually increased. This is no more than to say, that each crop was too insignificant to overbalance the advantage to the soil of an active cultivation. The writer then goes on to advise certain applications of manure which he thinks will produce a remunerating crop, concluding with 200 lbs. of manipulated guano. What we have to say with reference to this grain is, that so far as our experience and observation goes, 200 lbs. of guano will, on any kind of land, produce more bushels of wheat than of rye, worth nearly twice as much money. While we do not deny that some rye may grow on such land as will bring no wheat at all, on any land which will produce a respectable crop of rye, we may get a more valuable crop of wheat. Therefore we said at the beginning, that as no reason as to time of seeding or harvesting could give it a preference, we wonder why it should continue to be sown. We say this in the face of Pennsylvania farmers' predilection for rye-chop as horse feed. We admit it may be the best food for his laboring horses, but is it not a very expensive one?

There is one use to be made of rye which we heartily commend, and that is for very early spring pasturage, or for soiling before the clover comes into use. Two bushels of seed to the acre, sown now, (a month earlier would have been better,) upon a rich lot, will give a great deal of early green food, and still produce a fair crop of grain. It is especially useful for milch cows, but every animal from pig to horse will enjoy it.

From the National Intelligencer.

The Department of Education—Agricultural Colleges.

One of the objects of Congress in establishing the department of education was to diffuse information among our own people, as well as those interested in American progress in Europe, relative to the systems of instruction in the several States of the Union. The following letter on agricultural colleges has been prepared in reply to a request:

DEPARTMENT OF EDUCATION,
Washington, D. C., August 9, 1867.

Dear Sir: Your letter of the 3d instant, to the Secretary of the Interior requesting the "addresses of the agricultural colleges of the United States," and printed information relative to them, has been referred to the department of education.

As yet the department has no printed information on the subject for distribution, and can only furnish you with a brief and partial statement.

In New Hampshire, the proceeds of lands granted by the act of 1862 for the encouragement of agriculture and the mechanical arts, has been applied towards the establishment of an agricultural and mechanical department in Dartmouth College. In Vermont, the University at Burlington has received the benefit of the grant.

Massachusetts has located an agricultural college at Amherst, separate from other educational institutions, and although not yet in operation, the trustees have published some reports worthy of perusal, and in the last volume of the Massachusetts Board of Agriculture, which I presume you can obtain by writing to the secretary of that commonwealth, you will find an interesting discussion by Agassiz and others on the relation of the college to the agricultural interests of the State.

Rhode Island has assigned her land scrip to Brown University, and Connecticut has given the donation to Yale College.

N. York has appropriated the funds of the college land scrip to the Cornell University, and Rutgers College in New Jersey receives the benefit of the grant to that State.

Pennsylvania has an agricultural school near Bellefonte, in Centre county, and the annual interest from the proceeds of land scrip, until otherwise ordered, is devoted to this institution. The State Agricultural College of Michigan, established at Lansing in 1855, receives the benefit of the land grant, and in 1866 had a farm of six hundred and seventy acres, and more than one hundred students. Iowa has a State Agricultural College in Story county, and in Wisconsin the State University at Madison receives the benefit of the grant. Kansas has an Agricultural College at Manhattan, Kentucky a successful institution at Lexington, and West Virginia has just established a College at Morgantown.

In two or three months after the department is fully organized, it is expected that reports of the State agricultural colleges and other educational institutions will be forwarded to this office for distribution to gentlemen like yourself in our own country and in Europe, who call for information.

If the commissioner had been in the city he would have replied to your letter. Yours respectfully, ED. D. NEILL, Chief Clerk.

Prof. C. L. C. Minor, Hewlett's P. O., Hanover county, Va.

ED. D. NEILL, ESQ., *Chief Clerk of Dep't of Education, Washington, D. C.*

SIR: A letter addressed by you to Prof. C. L. C. Minor, of Virginia, having appeared in several newspapers, seems intended not only as an answer to his inquiries, but as a circular to the public of such information as you have, of the Agricultural Colleges of the country. Prof. Minor does not seem to have made himself known to you as the President elect of the Maryland Agricultural College, and it is unfortunate for us, near as we are to Washington, and on the great highway between that city and Baltimore, that the existence of our Institution appears to be unknown to your department. Taking the blame of this in a measure upon myself, I herewith furnish you, in the accompanying documents, the evidences of its existence and present condition.

Permit me to add to these, what I think is worthy of note, that the Maryland Agricultural College stands alone in the fact, that it was founded on the individual contributions of the farmers and citizens of the State, and a few liberal gentlemen outside of it; the subscriptions ranging generally from five dollars to two hundred, though, in many cases, exceeding the latter sum. The Legislature, duly estimating the spirit so conspicuously manifested, gave valuable aid to the Institution, and has more recently made full provision for the payment of a large debt, which, with serious losses, had been a source of great embarrassment. The property of the College, consisting of a substantial and well planned College Building, capable of accommodating a hundred and fifty students, a farm of two hundred and eighty acres, and other buildings, is moderately estimated at one hundred thousand dollars, entirely clear of debt. To this will now be added the nett sum of one hundred thousand dollars from the sale of U. S. Land Scrip, which has been invested, and bears interest from the first day of July past.

Of this land appropriation, which is now being made available in a number of the States to the purpose of Agricultural education, let me remark, that the first step towards obtaining it, as I think, was a memorial addressed to the Congress of the United States in 1854, by the Maryland State Agricultural Society, through James T. Earle, Esq., as chairman of the committee raised for the purpose. This memorial was endorsed by the United States Agricultural Society, and its provisions were adopted and recommended to the U. S. Senate, by their committee on Agriculture, in an able report of the chairman, Mr. Morton. The specific recommendation of Mr. Earle's memorial, was the purchase of Mt. Vernon, and the establishment there of an Educational and Agricultural Institution under the auspices of the U. S. Government. This project in time gave way to the more popu-

lar one of distributing to the States, public lands that should be devoted to the endowment of their own Institutions. The part which the late Hon. Chas. B. Calvert took in urging this measure, while representing the State in Congress, is well known, and it may be supposed that the energy and influence he always brought to bear when his heart was full of a matter, had very great effect upon its success. Mr. Calvert was the first President of our Board of Trustees, and Mr. Earle is his successor. I wish I could, within the limits of this communication, give you even the honored names of all who have taken an interest in Agricultural Education in Maryland. In 1848, at the first public meeting of the Maryland State Agricultural Society, Col. Wilson M. Cary, in his address to the Society, urged "the necessity of a professional education for the future farmers of the State," and the introduction of those sciences necessary for their pursuit into our colleges and seminaries. In 1850, Dr. White, of Montgomery county, introduced into the House of Delegates of Maryland, a proposition "to inquire into the expediency of requiring the several academies of the State, which receive aid from the public treasury, to provide for instruction in Geology and Agricultural Chemistry." In the State Constitution of 1851, an article was inserted, on motion of Allen Bowie Davis, Esq., to make it incumbent upon the Legislature to foster Agricultural Education. In 1854, Ramsay McHenry, Esq., as chairman of a committee of the State Agricultural Society, made a report that became the basis of the action of that Society, and resulted in the charter of our Agricultural College in 1856. And from the first named date, the *American Farmer*, the well known exponent of the sentiment of the Agricultural community of Maryland, has earnestly advocated whatever was calculated to promote Agricultural Education.

The farmers of Maryland have, therefore, a public record of their opinion on this subject extending through twenty years, and their College is its substantial outworking. They have not yet, indeed, accomplished all that they hoped for, but, under circumstances of the greatest difficulty, they have done much; and as they are not men to take any step backward, neither are they to be thwarted by impediments, nor dispirited by want of great show of present success, in a work which is for the long years before us. The foundation of even the greatest structures are ever underground; and if, sir, the groundwork of our Institution has failed to attract the notice of your department, let us hope that, that being now well done, it will rise in the early future to such fair proportions that, as "a city set upon a hill," it "cannot be hid."

I am, sir, with great resp't your ob't serv't,

N. B. WORTHINGTON,

Acting President of the Md. Ag. College.

From "Turf, Field and Farm."

The Late Obed Hussey—Reapers & Mowers.

In the annexed history, from the *Weekly Ohio Farmer*, we regret to note the absence of the name of a citizen of Maryland, to whom, undoubtedly, belongs the credit of having invented, and brought into practical use, the first reaper and mower ever seen upon this continent. We allude to the late Obed Hussey, of Baltimore. We remember, when quite a young man, the interest with which we watched him, hour after hour, toiling upon the rude materials, which, at the bidding of his genius, were soon to be fashioned into the machine, which has done so much to lessen the toil of the farmer and cheapen the food of mankind. We remember his many heart breaking discouragements, and the brave perseverance with which he encountered and overcame them. We remember, too, rejoicing with him at the first successful trial of his mower, made on the estate of the late Gustavus Weems, in Anne Arundel county, near Herring Bay. If we are not mistaken, the heirs of Hussey are now reaping, in the shape of a royalty on part of his invention, the reward which he, unfortunately, did not live to enjoy. The old *American Farmer*—the *Farmer* of 1819—is the proper place for a memoir of this truly valuable citizen, and while many of his cotemporaries are yet alive, it is probable all the necessary materials may yet be had in Baltimore. We hope Messrs. Worthington & Lewis will take it into consideration.

We find the above in a late No. of our valued exchange, *The Turf, Field and Farm*, and have to say in reply, that we shall be glad to have it in our power to do justice to Mr. Hussey, whenever we can obtain authentic information on which to base it. Just now, while we are able to endorse all that our contemporary has said of Mr. Hussey as a most worthy man, and do not doubt at all his claim of "having invented, and brought into practical use, the first reaper and mower ever seen upon this continent," we can do no more until we can get from his friends suitable evidences of his claims in this respect. We shall be glad to make proper use of them when obtained.—EDS. AM. FARMER.

DEATH OF WILLIAM N. WHITE, ESQ., EDITOR OF SOUTHERN CULTIVATOR.—We regret extremely to learn from the August number of the *Southern Cultivator* the death of this useful and estimable gentleman. Through his excellent journal, and an occasional correspondence with Mr. White, we had set a high estimate on his character, which is fully confirmed by the eloquent and touching tribute to his memory, of his associate, Mr. Redmond, from which the following is extracted:

"The life of Mr. White was very correct and blameless, and his tastes simple, pure and natural. He loved all that is most loveable and attractive in Nature and Art—beautiful scenery—good and useful books—fruits, flowers, birds, children, and the society and companionship of those of kindred and congenial minds. Personally, he was altogether unaffected and cordial in manner—strict, and scrupulously just in all his dealings—of high and unswerving principle, and unquestioned honesty and integrity—a *true* and *good* man, possessing the entire confidence and respect of all that knew him. And above all, a sincere and earnest follower and servant of Christ, the consolations of whose holy religion shed a glory and tranquility around his dying bed, which none of the friends who were present can ever forget."

For the "American Farmer"

Manures.

MESSRS. EDITORS: If it be true that "Agriculture underlies all the other pursuits of life, and the question of *Fertilizers* underlies Agriculture," how important, then, that every farmer studies profoundly the subject of manures?

"*He must have food for plants.*"

Can Guano be expected to meet the full requirements of either the plant or the soil?

Does even the very best barnyard and stable manure meet ALL the requirements?

No man who tills the soil for a livelihood can afford to neglect to save and *increase* his stock of manure. At the best, the supply of home-made manure will always be *insufficient* for the needs of an advanced condition of agriculture.

In this era of *artificial manures*, genuine fresh bone super-phosphate of lime, in the opinion of the writer, stands pre-eminent. It will pay abundantly when judiciously used, for it will accomplish results which farm-yard manure cannot possibly do, unless used very extravagantly, and the effects will be far more lasting.

Revolutions in agriculture are slow. Farmers are cautious. It behooves them to be so, for many worthless articles are palmed off upon them, until they turn with disgust and cry out for bone dust in a *reliable* form.

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Parental Influence in Breeding.

The Highland and Agricultural Society of Scotland, some years ago, proposed as a subject of prize essays, the question, "Whether the breed of live stock be susceptible of the greatest improvement from the qualities conspicuous in the male, or those conspicuous in the female parent?" and adjudged afterwards four essays upon it, as worthy of premiums, and published them in their Transactions.

Mr. Boswell, the author of one of the essays, asserts that the male is most influential; supports his opinions by an appeal to facts, and concludes, that "the male is the parent from motives of sense and sound polity, which we can alone look to for the improvement of our breed of live stock."

The Rev. Henry Berry, the author of another of the essays, teaches that the improving power in breeds is attributable not to sex, but to high blood, or to animals, whether male or female, which have been long and successfully selected, and bred with a view to particular qualifications; yet concludes that, "with our present scanty stock of information on this difficult question, only one rational course can be adopted by breeders, viz, that of resorting to the best male; a simple and efficacious mode of improving such stocks as require improvement, and the only proceeding by which stock already good can be preserved in excellence."

Mr. Christian, another of the essayists, asserts that the offspring bears the closest resemblance to the parent, whether male or female, which exerts the greatest influence in the formation of the fœtus, and concludes that no individual animals, either male or female, can be trusted to for improvement, and that the best breeds and most perfect animals of both sexes ought in every instance to be selected.

Mr. Dallas, of Edinburg, the fourth essayist, asserts that the male is the more powerful for external qualities, and the female the more powerful for internal qualities, and infers that the male ought to be selected for improvement of coat, color, or outward form, and the female for the improvement of lactiferousness, hardiness, temper and freedom from tendency of any description to internal disease.

The General Dictionary of Agriculture and Arts and Sciences, &c., published at Edinburg, in commenting upon these several opinions, says: "The opinions of Mr. Boswell and Mr. Berry, if mutually combined, or if made to modify each other, appear to contain the truth, or very nearly the whole of the truth, upon this question; and the opinions of Mr. Christian and Mr. Dallas

are altogether, or very nearly, altogether *fanciful*—the one in theory and the other in fact. The power of blood, or of regular, systematic, untarnished breeding, through a series of generations, appear to be so great as wholly to supersede mere sexual or constitutional power, and though peculiarly mighty in the male, is not a little distinguished in the female.

A cow, possessing excellencies by pure descent from a high ancestry, holds them as essential elements of her constitution, and will transmit them in all their breadth and beauty to her progeny, while a bull, possessing them by tarnished descent from a near ancestry, or merely by a cross of breeds on the part of his immediate parents, holds them as only secondary properties of his constitution, and may propagate them in a very marred and mutilated condition. The mare of Arabia is the grand object of the Bedouin's attention, and is constantly and carefully maintained in a condition of eminent excellence, and she, in consequence, bears all sway in propagation, and often transmits her peculiar properties in defiance of antagonistic ones in her mate. Still, the male, by nearly unanimous verdict of both practical and scientific observers, has, *cæteris paribus*, far more influence than the female; so that when simply equal to her in descent, and in some minor modifying circumstances, he at once maintains his excellencies by a mightier energy, develops them with a superior force, and propagates them both with a fuller breadth and higher certainty. The male, therefore, demands the prime attention of every breeder.

Facts in Fruit Culture.

Doctor Trimble, of Newark, New Jersey, who has paid great attention to fruit culture, gives the following as his views—the result of many years experience.

1. That the most successful way to conquer the curculio is to gather the fruit as it falls, and feed it to stock, or destroy it, as it is by this falling fruit that the curculio propagates its species.

2. That the fruit of the apple tree can be protected from the apple tree moth by wrapping around each tree two or three times a rope made of straw. The moths will harbor in this rope and can then be destroyed.

3 That the only way to kill the peach tree borer, is to cut him out with a knife, not once only in a season, but to follow him up every two weeks until exterminated.

After the first "going over" of an orchard this will be little or no trouble, as each tree can be attended to in two minutes.

Alsike or Swedish White Clover.

I would here state the view of the value of the Swedish White Clover presented by reports from twelve different agricultural societies, which are the result of careful experiments, made in localities differing greatly in soil and exposure. I recapitulate the chief points. 1. That Swedish White Clover is not liable as Red Clover to suffer from cold and wet weather. 2. That in dry sandy soils it is not so certain or valuable as White Clover, but succeeds admirably on more loamy soils, and on such, surpasses either of the other kinds. 3. That in any rotation it may safely follow the common Red Clover. 4. That the yield per acre of the first mowing is not inferior to that of the Red Clover, but that ordinarily the aftermath, or rowen, is not so abundant. 5. That for soiling purposes it should not be mown till it is in full blossom. 6. That when cured as hay it is a highly nutritious fodder, and is preferred by cattle and milch cows to that made from Red Clover. 7. That the aftermath is followed by a dense and excellent growth, furnishing most excellent pasturage till late in the season. 8. That it yields an adundance of seed, easily thrashed out by a flail or machine three or four days after mowing. 9. That Swedish White Clover is fed to most abvantage after it has fully matured its blossoms, while Red Clover, if allowed to stand to this stage, will have already lost a considerable portion of its nutritive properties. 10. That this clover is pre-eminent both in quality and product, and is especially valuable for the continued succulency of the stalk, even when the plant is in full bloom. 11. That it requires a less fertile soil than the Red Clover, and is less liable to be thrown out by the frost in the winter. 12. It grows as tall as the common Red Clover; bears many blossoms on a stalk, in size resembling the common White Clover.—*Cor. Country Gentleman.*

Poultry Manure.—The productive power of the droppings of the hennery are very great as compared with ordinary barnyard manure, yet many farmers, with a score or two of fowls, take little or no pains to preserve and apply it to the purposes of vegetable production. It is an excellent dressing for gardens, and will repay, a hundred fold, the care and expense of preserving and applying it.

Dogs.—In England the dog tax yields a good sum. Up to the end of June last, licenses were taken out for 695,624 dogs, against 394,837, on which the tax was paid in the year ending March, 1866. In Scotland the number of dogs taxed has increased from 36,365 to 80,000.

Superintendent of Labor and Agriculture.

ANNAPOLIS, August 17, 1867.

Messrs. Worthington & Lewis:

MY DEAR SIRS: You ask for information concerning the new department of Labor and Agriculture, which has been engrafted on the Constitution now about to be submitted to the people of Maryland. I have only time, at the hour of our final adjournment, to mention its leading features; but, if you desire it, I will endeavor, at a future day, to give you my views as to the manner in which the leading object of the measure (viz: the business of obtaining white laborers) can be best performed. Meantime, I refer you to my speech on submitting the report, and which I now send, as you say the first copy has failed to reach you.

None know better than yourselves how the abolition of slavery has been followed by diminished agricultural production, and by the rapid depreciation of lands. This was predicted by all who were acquainted with the character and habits of the African race. The force of the blow inflicted upon the productive industry of the Slave States might have been weakened, if the landholders themselves had been allowed to reorganize their labor. But it was not the intention of the victorious faction to permit any postponement or mitigation of the evils flowing from their policy. Their design from the onset has been to make the South another Jamaica. Hence the Freedmen's Bureau and military despotism, to discourage systematic industry and disseminate pernicious agrarian doctrines. The negro, invited to the political field, to join in the wild hunt for spoils, ceases to be of much account as a laborer. The only remedy that I can perceive, for this growing evil, is to be found in an increase of our white laborers by immigration, in amount sufficient to displace the black politicians; and I have thought that this was one of the most important tasks to which Southern men could address themselves. The remedy must necessarily be slow, and therefore cannot be applied too soon. Many of our farmers cannot, or will not wait for it; but discouraged by the difficulties which beset them, or disgusted by the increasing exactions of their servants, are selling their lands at prices which hardly pay for the improvements on them.

The condition of the labor of this State, after the Constitution of 1864 had been forced upon our people, did not fail to arrest the attention of the Legislature; and, at the session of 1866, the office of *Commissioner of Immigration* was established. The chief duty of this officer was to visit emigrant vessels upon their arrival in Baltimore, with the object of inducing immigrants to settle in Maryland. All who know anything of the way this business is managed by the agents from our Western States *in Europe*, must see how futile such efforts *here* must be to change the tide. The direction must be given to it *at the starting point*, and by all the appliances so successfully employed by our competitors.

Again in 1867, the Legislature created another office, viz: that of *Immigration Agent*. The business of this officer is to travel and lecture in certain States north of us, with the view of attracting population to Maryland. The gentleman who fills this position seems sanguine of success; and no one will be more pleased than myself if, before the date of the qualification of the Superintendent of Labor and Agriculture, (Jan., 1868,) he may be able to so demonstrate its utility as to invite further efforts in that direction.

My own opinion of these two offices I have expressed in the Convention, and I will not trouble you with a repetition of them. Their organization seemed so imperfect that a majority of the members desired their speedy abrogation. Impressed, however, with the importance of the subject, and desiring that the State should continue to lend, in some way, the sanction of its authority to the business of restoring its productive labor, we proposed, and were permitted to combine the functions of both the immigration offices into one bureau, and at one-third of the cost. Here the friends of the measure would have been content to halt; but so little faith had many in its success that, in order to obtain that small boon, we found it necessary to go on and require other public services from the new department, and which, though of undoubted utility and importance, will make the office of Superintendent of Labor and Agriculture, if faithfully executed, one of the most laborious under the new Constitution.

The first duty of the officer is to execute such plans for obtaining an increase of labor, as have been or may be authorized by law. If the Legislature appropriates to the work no more than the amount which this combination of the two offices will at once save to the State, I hope and believe that before the close of the four years its services will prove of such value in obtaining laborers and tenants for our land-owners, that it will be continued with increased popular confidence and support. And here let me remark that, in order to test fairly the possibility of adding, to any considerable extent, to our popula-

tion and to the value of our lands, by means of such a State agency, the committee recommended that the office should endure for *eight* years, but I regret to say that the Convention reduced the term to *four* years.

The second duty of the Superintendent is to supervise all the inspectors of agricultural products and fertilizers. On this subject I refer you to our report, and will only add, that a retired merchant of Baltimore recently said to me—in reference to this branch of the Superintendent's duties—that if he was a few years younger, he could take this new office and save annually $10,000 to the State, and so elevate the standard of inspections as to increase vastly the trade of your city.

The next duty of this officer is to take charge of the State warehouses and other public buildings.

And finally, by an amendment offered by Mr. Hollyday, of Talbot county, it is made his duty "to inquire into the undeveloped resources of wealth of the State, more especially concerning those within the limits of Chesapeake Bay, and suggest such plans as may be calculated to render them available as sources of revenue."

I think, gentlemen, you will agree that the man who well performs all these duties, without the assistance of a clerk, will earn his compensation, which is $2500. It is, however, one of those offices, the success of which will depend much upon the industry and intelligence of the incumbent, and upon the support it may receive from the General Assembly. It is to be hoped that the people will elect a good officer, and that the Legislature will repose a generous confidence in him. Every consideration of policy and interest demands the success of this bureau. I have no time to write more. The new Constitution will be printed and ready for circulation in a few days. Hoping that in all of its departments it may receive your approbation and the support of the *Old Pioneer*,

I am truly yours,

L. GIDDINGS.

GRAFTING WAX THAT WILL NOT MELT OR CRACK.—Take one pound tallow, two pounds beeswax, and four pounds rosin; melt together; pour into cold water, and when cold enough to handle, pull it till white. Put on cold.

☞ M. Comaille, of the Paris Academy of Science, tested for a year the laying capacity of three ducks and three hens, under the same conditions, with this result: hens, 257 eggs; ducks, 617 eggs.

From the American Agriculturist.

Manure Frauds—The South Chiefly Victimized.

Our attention is seldom called to fraudulent dealing in pretended fertilizers, when we do not find that the planters and farmers of the Southern States are the great sufferers. A case of most glaring fraud has lately come to our notice in this way. A gentleman having a deposit of excellent shell-marl in Virginia, where it is easy to load vessels with it, was brought in contact with a Baltimore chemist, who proposed to him to manufacture it into a fertilizer fully equal to Peruvian guano, at a very low rate. A sample was furnished of a "manipulated" fertilizer he was then making, and selling for $40 or $50 per ton retail, and the manipulator agreed to make an article equally valuable, using the marl as a basis. He took also some of the marl and prepared a sample of what he would furnish. This was sent by us to Prof. Johnson, of Sheffield Scientific School, New Haven, for analysis, and we soon learned that it was, as we presumed it would prove, of *no value* as a high priced fertilizer. It is probable that the rascally "chemist" had added nothing whatever of manurial value to the marl. The marl itself has value where it can be liberally applied, and the cost of transportation is not much. Our friend was thus saved the loss and shame of being involved, with his friends, in so disgraceful an enterprise, but the fact remains that the chemist continues to make and supply to the southern trade, the worthless article of his own, at a high price. The man actually pretended to court investigation, and to be perfectly willing to have the stuff analyzed, thinking in this way to bluff off investigation, by a show of honesty and conscious rectitude. His name is Carey, as we understand, and the "fertilizer" is called "French Manipulated Guano," or some similar name. There are more birds of the same feather.

We copy the above, only to say that we have never heard of any such Baltimore chemist as this Mr. Carey, or of any such fertilizer as the "French Manipulated Guano." If they are any thing more than fictions, people must go out of their way, we think, to find them. The columns of the *Farmer*, and other respectable journals, present names and articles of real value, quite sufficient for the supply of fertilizers, and people of common sense, commonly consult these journals and their own interests at the same time. It is only such weaklings as the *Agriculturist* has taken the guardianship of, that need protection against Mr. Chemist Carey and his "French Manipulated Guano."—EDS. FARMER.

For the "American Farmer."

Horse Labor.

CLIFTON, Fairfax Co., Va., Aug. 15, 1867.

MESSRS. EDITORS: The quantity of labor we are entitled to demand of our teams on the farm, is a question not fully understood by many of our farmers. Few have ever given it a thorough, and if they have done so, I doubt if there, in most cases, has been any close calculation.—There are few farmers who do not annually lose considerably by not giving this matter proper attention. The "cardinal point" is, "NEVER, if not prevented by bad weather, *allow your team to be idle.*" They are a daily expense to you, and the problem you have to solve is, to keep them at work *every day*. It is not necessary to let them remain idle, to rest them. Never overwork them, feed them well and regularly, keep them clean, *never* allow your hands to abuse them, keep a sharp look-out that they are properly hitched and driven, allow no stay-chains on your wagon, and your horses will keep in good condition. In corn ploughing time they will get thin in spite of the best feed, but when that work is over, they will recover. If you treat your horses as above stated, you may work them from sun up to sundown, with one hour and a half for dinner in summer, and one hour in spring and fall, when the days are shorter. I know that my friends think I work my horses harder than any farmer in the State (or District, I should say,) but, gentlemen, I have adhered to the above principles for thirty years, and my horses have *always* been able to stand the work assigned them, and keep in good working order. The best proof is, that in the spring of 1866 I broke with each two horse team, 40 acres of sod land, (most heavy clay,) harrowed it, ploughed and harrowed 20 acres for oats, and besides, hauled 35 four horse loads of manure from town, four miles distant. Each horse worked twenty-seven acres of corn three times, and all the work was accomplished *well* and in *due* time. Still my horses are common horses of middling size, only having been in my possession three weeks previous to the commencement of ploughing. Estimating the daily feed of a horse at one peck of corn, or its equivalent, and ten pounds of hay, the daily expenses of a horse are:

One peck corn	$0 20
Ten pounds hay, $15 per ton	0.15
Shoeing all round once every six weeks, per day.	0.03
Wear and tear on harness, $3 65 per annum	0 01
Interest on capital of $125, invested at 7 per ct.	0.02½
Loss on capital 10 per cent., per day.	0.03
Insurance	0.01½
	46

Say 50 cents per day. If we further estimate a day's work all the year round at ten hours, your hourly expense per horse is 5 cents. By this, you can make your own calculation what is lost every hour your horses are allowed to remain idle. Count the hours all the year round and you will have a sum which will astonish you. True, you do not disburse all the money lost, but the feed of your horses is equivalent to money. Many a farmer will say, he has not always work for his team, but, gentlemen, if no more teams are kept than necessary, there is *always* work for them. I, at least, have found, through thirty years' experience, that I always had more work for my teams than I could get done. Others will say, we do not feed our horses so high after ploughing is done, and consequently they are not so expensive to us. Well, gentlemen, it is a poor plan to diminish the feed of your horses at certain periods. A horse evenly fed all the year round, keeps *always* powerful and in good condition, whereas a horse, fed high at one time and poorly at another, never can retain the same condition and strength. Besides, by a uniform treatment and feed, your horses will last *much longer*. To a great many this close calculation may seem paltry, but it is only by close calculation we will be able to make ends meet. "Many rivulets make a large stream."

L. A. HANSEN.

AUSTIN, Travis Co., Texas, July 25, 1867.

Editors of the American Farmer:

In answer to "Melrose," of North Carolina, regarding Texas, I can say for this and the adjoining counties, say, Hays, Williamson, Burnet, Bell, Lampasas, San Sava, and indeed west and south of this it is as healthy as any part of the globe. I have lived in this part of Texas for near thirty-two years, and in that time there has not been an epidemic of any kind. I know the region of country mentioned to be perfectly healthy. As to temperature, we seldom experience heat above 90°, and that only for a short time during the day, and then with a fine breeze.

Land can be had at from 50 cents to $25 per acre—good land. The country is not in a depressed condition. This year we have fine crops and provisions in abundance; cattle and horses by the thousand, and plenty of hogs, and some sheep. The latter do remarkably well here, seldom requiring shelter or feeding.

Grapes promise well so far as they have been tried. Wheat, rye, barley, corn and cotton grow to great perfection. Sweet and Irish potatoes, and all kinds of vegetables, do well.

"FARMER."

Introduction of the Potato into Europe.

The late Commissioner of Agriculture claimed, it is said, for his own State of Pennsylvania, the credit of giving to the world the potato, and received a semi-endorsement of his claim from the leader of the House of Representatives, at Washington. It had before that been universally allowed to be a product of South America, but it was as generally claimed, perhaps, that Virginia, through Sir Walter Raliegh, had a rightful claim to the honor of having introduced it into European civilization. Very recently there is shown good reason for supposing this to be an error.

M. Drouyn de L'huys, the well known and justly distinguished French statesman, on retiring from public cares, has resumed the position of President of the Imperial Society of Acclimatisation in France. In a recent address, to show the importance of the labors of his association, he enters into the difficulties encountered on the introduction of new plants, and shows that it is only within fifty years past that, in his country, there has been any proper appreciation of this extremely valuable esculent. In doing so, he goes into a very interesting examination of the history of its introduction into Europe, and overthrows our claims to having sent it across the Atlantic. For the translation of this address we are indebted to the Edinburg *Journal of Agriculture*. It is as follows:

"Acclimatisation is, above all, a work of patience. At former meetings I recalled how much time and how many efforts were needed for the introduction into France of the plants which furnish our principal textile materials, as well as the vine, which gives us our national beverage. I shall to-day rapidly retrace the history of a modest plant imported from America three centuries ago, but which has been largely consumed by us only for fifty years, so much had those who introduced it to struggle against the indifference and even the prejudices of their contemporaries. Men are always disposed to judge from appearances. Now, the potato, the scientific name of which is *Solanum tuberosum*, belongs to the family *Solaneæ*, which, in his poetical language, Linnæus terms sad and lurid, on account of their sombre aspect, and among which are found some of the most poisonous plants—such as belladonna, stramonium, and henbane. Let us, in order to completely restore this group, hasten to add that to it are we indebted not only for the potato, but also for the mad-apple and the tomato, both of which are exotics, the mad-apple having come to us from India and the tomato from Brazil. As to tobacco, I shall, out of prudence, not speak of it—speaking well of it, I should run the risk of offending the fairer portion of my audience; speaking ill of it, I should alienate the other portion of it; and I have too much need of the indulgence of all who hear me to expose myself to such a danger; besides, I do not wish to quarrel with the Minister of Finances.

"It has long been doubtful whence the potato came. Relying on Gaspard Baughin, himself misled by the partial studies of travellers, botanists have often repeated that the potato was brought to us from Virginia about the end of the sixteenth century; and to Sir Walter Raliegh they attributed the honor of having naturalized it in Europe. Cuvier was one of the first to combat this opinion, and to demonstrate that the potato, whose native soil really is Peru, was first spread over our continent by the enterprise of the Spaniards. He points out, with reason, that the potato does not figure in the list of plants of Virginia drawn up by Banister and Clayton, and that one of these *savants* himself states that he had there vainly sought for it during twelve years, whilst Dombey found it wild among all the Cordilleras, where the Indians have improved it by cultivation, and still use it as at the time of its discovery.

"If we consult the ancient annalists of the Spanish rule, such as the Jesuit Acosta, who was Provincial of his order in Peru, and whose Natural and Moral History of the Indies was published at Seville in 1509, or rather Augustin de Zarate, author of the History of the Conquest of Peru, published at Antwerp in 1555, and who long filled the office of Inspector General of Accounts in this vice-royalty, we learn that from time immemorial the potato was cultivated by the Peruvians, who called it *papas*. This tuber, along with the farinaceous seeds of *Chenopodium quinoa*, constituted their chief food. Since the invasion, the cereals of Europe have mostly supplanted the quinoa; but the potato is still cultivated in all the equatorial Andes at an elevation of from nine to twelve thousand feet—an elevation at which wheat, and even barley and rye, cannot live. The grasses of Europe, imported into Peru in exchange for its precious tuber, prevail, in their turn, in the region between the altitude of from six to nine thousand feet, whilst maize thrives in the lower zone. Alexander Humboldt, who has so picturesquely described the vegetation of these elevated regions, relates that, in the cloister of the Franciscans at Quito, he has seen, preserved as a relic, the earthern vase which had contained the first seeds of wheat sown in Peru by a monk of the city of Ghent,

named Godoco Rixi. According to the same author, a negro, a slave of Fernando Cortes, was the first to introduce wheat into New Spain, by means of three seeds found amongst a supply of rice which had been sent from Europe for the maintenance of the army.

"Bowles, in his introduction to the Natural History of Spain, says that the potato was first transported into Galacia, and thence into Italy. In the latter country it was so common at the beginning of the sixteenth century as to be given to animals. We find it again, under the name *cartoufle*, in 'Theatre d'Agriculture et Menage des Champs,' published by Olivier de Serres in 1604. The father of French agriculture speaks of it as a plant recently brought from Switzerland into Dauphine. In 1616 it reappeared at the table of Louis XIII, but this momentary favor speedily vanished. Less in favor in the provinces than at Court, the potato was denounced in Bourgogne because of its fancied production of leprosy.

"The Spaniards introduced it into the Low Countries. In 1508 the Governor of Mons, Philippe de Sivry, sent some specimens of it to Censius, director at Vienna of the gardens of the Emperor Maximilian II. This Flemish botanist carefully describes the new tuber in his 'Histoire des Plantes rares,' in 1611. The place which he assigns to it in his collection makes it evident that the Peruvian plant was far from being naturalized. It was really introduced into German cultivation only in 1650, after having contended with the same prejudices which among us so long hindered its progress.

"In the British Islands, where the potato was to obtain its first triumphs, its valuable qualities were misunderstood for a century. In 1565, Hawkins, an Englishman, brought from Santa Fe de Bogota some tubers, which he planted in Ireland, but which were soon neglected. Drake, having sailed under the command of Hawkins, and comprehending, like him, the value of this vegetable, imported it into Virginia, where it was cultivated successfully. It was from this that in 1586 he took the tubers destined for his own country. He sent some of them to the botanist Gerarde, who, in his 'Herbal,' printed in 1597, gave an engraving of *Solanum tuberosum*, under the name of the *Virginia potato*. The details which I have given explain this error in attributing it to Virginia. Gerarde had acquainted some of his friends with the plant, but it was forgotten, and Sir Walter Raliegh had to bring new specimens into Ireland at the beginning of the seventeenth century. In 1684 the potato spread into Lancashire, and into Scotland in 1728, and in British agriculture soon assumed the place which it deserved.

"Whilst the potato was gradually extending beyond our frontiers—and we can mark its progress in Saxony (1770), in Prussia (1738), then over all Germany, after the famine of 1770—its propagation in France was insignificant. In the reign of Louis XV, it began to be known in Anjou and Limousin. The celebrated Turgot favored its propagation. His brother, entrusted with the organization of Guiana, had brought back potatoes, which he planted on his property of Bons, near Falaise, whence, thanks to his friend Parmentier, they spread all over France. Every one knows with what perseverance this modest benefactor of humanity defended the tuber for forty years against the calumny of the learned, who denounced it as a tasteless and poisonous food, as well as against the ignorance of the masses. He asked for the barren plain of Sablons in order to make experiments. Louis XVI honored the new cultivation with his protection, and appeared at a great feast, before the whole Court, wearing in his button hole a bunch of flowers of the unpopular plant, which was soon brought into fashion, at least at Versailles.

"Shall I tell you of that dinner which Parmentier gave in 1775, at which all the meats and even beverages were furnished by the potato? Shall I recall his ingenious strategem and his feigned precautions to excite desire to feast on forbidden fruit, by causing his fields to be watched during the day in order that the poor might be tempted to steal by night the tubers which he wished them to taste? The Revolution understood their value; by a decree of 21 Ventose 1793, the commune of Paris ordered the garden of the Tuileries to be planted with potatoes. Nevertheless, the exhortations of Parmentier did not succeed in overcoming prejudices. In the year II the authorities of the district Eure-et-Loire were obliged to give to the poor the tubers which they had sent with a recommendation to grow them, because not a single peasant had chosen to promise that he would undertake their cultivation. Under the First Empire, in 1809, a report of the Minister, Francois de Neufchateau, only mentions attempts made in seven departments. It was only beginning with 1816 or 1817, after a famine which raised the pound of bread to thirteen sous, that in France the resolution was taken to give greater extension to the cultivation of the potato.

"In our day the potato has penetrated to the extremities of the Old World—to Iceland and

China, where it was introduced by the Russians at the beginning of this century. It has also spread to Australia and New Zealand.

"You see that nothing less than the initiative of intelligent navigators, the patronage of a good king, the indefatigable perseverance of a great citizen, the advice and example of enlightened administrators, aided by the powerful pressure of periodical calamities, was needed to overcome the obstacles and dissipate the prejudices which hindered the diffusion of this discovery so useful to humanity.

"Poets tell us that Æneas, before taking away the golden branch, and that Hercules, before gathering the fruits of the garden of the Hesperides, had to fight with formidable monsters which forbade their approach. This fable, let us be assured, will often be the history of acclimatisation; it is at this cost that it will achieve its triumphs."

Preparing for and Planting Pears.

Those who intend to prepare land for pear trees, especially dwarfs, may profit by the following hints. The course we propose adopting may possibly benefit some of our readers.

As we cannot prepare largely, we design to do a little and do it thorough, follow year after year, believing we can do better, secure as good a crop, yet prepare thorough.

We want a large pear orchard, it being a hobby of ours for many years, and since coming here having seen many pear trees, some as large as we had that we know are over thirty years old, and far the healthiest trees of any fruit, and especially the pear, that we have seen, we are much encouraged. We have now about one acre cleared this season, and now with Irish potatoes, melons, squash and some one thousand to twelve hundred Catawba cuttings growing, we design plowing about four to six inches deep and subsoiling thorough as deep as we can possibly; if we can get two yoke of oxen, intend to use them; if not, a pair of mules.

By planting our trees five feet each way, we can put on an acre seventeen hundred and forty-two trees. By referring to a table in the Albany Cultivator of 1834—we use the calculation next season—we can remove one-half the rows, leaving five by ten. The year after, every other tree, leaving the trees to remain ten by ten.

Should we be pressed next year we would not remove a tree, but would plant another acre. No doubt, with proper attention, but what dwarfs will do, for five years, as well at five feet apart as if placed at ten feet, and so far as our management goes, we should treat our trees precisely alike—at five or at ten feet. We shall use no manure for the first and may be the second year, then we will cut a ditch all around to the depth of any root, cutting off all roots eighteen inches from the tree and mix manure with the earth, with coarse bones, and return it. We have ourself tried (very limited, we admit) this thing, and seeing that others, thoroughly versed in pear tree culture, recommend, we will have no fear in carrying it out. At ten by ten there are four hundred and thirty-four trees on an acre, and the seventeen hundred and forty-two trees will do as well, until we root prune, as if only the four hundred and thirty-five. It will be economical. As to the fruit and the removal, we have no idea that there will be any loss, for the removal can be effected in the fall, and only at a distance of one hundred yards or so. We will plant some standards, and we will root-prune and manure all same way, and make all trees small, and force them into early fruiting; we should not hesitate to even plant standards at same distance. No doubt but what frequent removals are advantageous, and we found out that by accident. We bought a lot of pear trees from Hovey, of Boston, and put them out. We lost a few by being blown off at junction, not knowing when we planted how to manage. The ensuing year we took all up and reset—junctions on a level with earth. We lost a few. Again we took up and set the quince below the surface earth.—Our trees never showed any backset or injury. Thus have we had to learn. Now our readers can procure books, at two or three dollars, that will interest, and, besides, our friend Swasey and ourself are always ready to give the result of our experience. We have paid for our learning, and much gratified to be able to help others.—*Dr. Philips in Southern Ruralist.*

Good Farming.—By manuring and careful culture, Dr. Cloud raised 5,898 pounds of cotton to the acre, on poor piney woodland, in Macon county, Alabama. By the same system General Dunlap, of Mississippi, picked five pounds of cotton, by weight, from a single stalk. It does pay to farm well, anywhere, whether in a new or old country.—*Exchange.*

Potato Bugs.—One of our correspondents writes that if farmers will plant their potatoes near the house or barn, where the hens and young chickens can have free access to them, they will keep the bugs off. He says he has tried this plan for two years—last year and this—and has not been troubled with the "varmints."—*Ex.*

Poultry Department.

THE AYLESBURY DUCK.—The characteristics of this valuable variety are soon described. Great size, immaculate purity of white plumage, a large, broad, pale flesh-colored bill, which should be free from dark marks or stains, constitute the most strongly-marked features of the breed. In weight, Aylesburys are generally somewhat inferior to the Rouens. Of late years, by careful selection of brood stock, great improvements have been effected in the size of this breed; formerly, twelve pounds per pair was thought a good, and sixteen pounds an extreme, weight; but at the last Birmingham show the first prize pair weighed eighteen pounds, and the birds had probably lost a pound during their journey from home.

Aylesburys are, if well fed, prolific layers of fine eggs, the shells of those laid by the best strains being of a clear white. As sitters, Aylesburys are better mothers than Rouens, not being so unwieldy in their actions.

Those intended for breed stock should not be fed to the extent that is requisite in the show-pen, many of the exhibition birds being so fat as to have the abdominal muscles stretched to such a degree that the birds are "down behind." The inexperienced breeder should be cautious in purchasing such birds, as they are generally perfectly useless for stock purposes, the drakes and ducks being alike sterile.

In order to exhibit these birds in the state of repletion seen at our shows, they are kept away from water, fed most liberally on boiled meal or grain, and confined in dark room, so as to maintain the delicate flesh color of the bills.

The feeding of all varieties of ducks is best managed by putting the grain into a pan of water. In this way it is taken more readily, not any portion is wasted by being trampled in the mud, and the birds are maintained in better health and in finer condition by not having to devour the food soiled by the manure of the yard. As the Aylesburys are the variety most generally selected for the supply of the London markets, the following extract from an article by Mr. Tegetmeir, on poultry regarded as agricultural stock, may not be without interest:

"In suitable localities, no kind of poultry are more remunerative than ducks, whether regarded as egg-producers, or as furnishing young birds for the markets.

"The variety that is most remunerative is undoubtedly the large White Aylesbury. Their great weight, extreme prolificacy, and the rapidity with which the young ducklings attain a size fit for the table, render them superior to any other breed. The true Aylesburys are distinguishable by their great size. The weight of the three prize pens (each containing a drake and one duck) at the Birmingham show in 1866 was, the first prize pair, eighteen, and the second and third, sixteen and a half pounds each. If these birds are fed liberally, and kept in a house which is provided with fresh straw, and cleaned daily, they will lay during the coldest weather, when the eggs should be placed under hens.—For this early hatching of ducklings, Cochins are particularly advantageous, as they sit well and cover a large number of eggs. The ducklings, when hatched, should be fed most abundantly with slaked oatmeal, and afterwards with oats thrown into a pan of clean water. Their appetites are voracious; but their growth is remarkable rapid, and under this system of management they are fit for the market in less than two months. Those birds intended to be killed should be prevented from swimming; but those that are to be retained for stock should have free access to water.

"The profit of rearing young ducks for the London markets is very considerable. In some districts near the metropolis the laborers endeavor to get early clutches of ducklings and rear them by hand in their cottages, and near Aylesbury great numbers are raised by persons who follow that occupation exclusively. The prices realized in the market by early ducklings, of necessity varies with the supply, but I have known them produce 8s. to 10s. each for several weeks together.

"One precaution should be taken in order to obtain all the eggs laid by the old ducks, namely, to shut them up during the night. It is generally at this time that they lay; and by adopting this precaution the whole of their eggs are secured; otherwise many are lost, as the ducks, until shortly before becoming broody, are careless layers, often dropping their eggs in the water, where they sink, and remain until putrid."—*Turf, Field and Farm.*

PRESERVATION OF SMALL BIRDS IN FRANCE.—The Minister of Agriculture has addressed a circular to the mayors of France, enjoining them to punish severely all persons caught in the act of netting, trapping, &c., small birds, whose valuable services as destroyers of insects, he set forth, demonstrating by statistics the utility of these humble members of the feathery genus.

☞There are over 20,000 acres of land in Alabama planted in sweet potatoes this year, which will produce 800,000 bushels.

Sunday Reading.

We have partaken of a spiritual table; let us be partakers also of spiritual love. For if robbers, on partaking of salt, forget their character, what excuse shall we have, who are continually partaking of the Lord's Body, and do not imitate even their gentleness? And yet, to many, not one table only, but even to be of one city, hath sufficed for friendship; but we, when we have the same City, and the same House, and Table, and Way, and Door, and Root, and Life, and Head, and the same Shepherd, and King, and Teacher, and Judge, and Maker, and Father, and to whom all things are common, what indulgence can we desire if we be divided one from another.

God hath reserved three prerogatives Royal to Himself—Vengeance, Glory and Judgment. As it is not safe for us then to encroach upon God's Royalties in either of the other two—Glory or Vengeance, so neither in this of Judgment. We have no right to judge, and so our judging is *usurpation*. We may err in our judgment, and so our judging is *rashness*. We take things the worst way when we judge, and so our judging is *uncharitable*. We offer occasion of offence by our judging, and so our judging is *scandalous*.

When I pray as heartily for my enemies as I do for my daily bread; when I strive, with prayers and tears, to make God his friend, who himself will not be mine; when I reckon his felicity among my own necessities, surely this is such a love as, in a literal sense, may be said to reach up to Heaven, and which could only come down from Heaven itself.

If thou givest to receive the like, it is exchange; if to receive more, it is covetousness; if to receive thanks, it is vanity; if to be seen, it is vain glory; if to corrupt, it is bribery; if for example, it is formality; if for compassion, it is charity; if because thou art commanded, it is obedience. The affection in doing the work gives the name to the work done.

Remember, that as God approveth not alms, or any other work, without charity, so neither charity itself without discretion.

One of the golden precepts of Pethagoras directs us, "that a friend should not be hated for little faults."

If thou be merciful, God hath bound Himself to be merciful to thee again. Lo, is not this an exceeding great thing, that God, which of no right ought to be bound to His creatures, hath put it whole in thy hands to bind Him, against the day of thy tribulation, to show thee mercy.

In thy zeal against the sins of others, be mindful of thy own exceeding sinfulness; call to remembrance thy great offences, which, though they be unfeignedly repented of, give thee to understand what cause thou hast to be meek, humble and patient towards all men.

My own exceeding faultiness engages me in seeing and hearing the faults and follies of others, to pity them rather than to rejoice and glory over them, and to cover or lessen those faults, rather than to aggravate or display them.

The publican and the disciple, the heathen and the christian, may agree in the material acts of charity; but that which formally makes this a christian grace is the spring from which it flows, and the recompense at which it aims.

One mercy is but a step to another. God's grace runs in eternal tenour of love and sweetness; but let duty go hand in hand with dependance on God; as He is not weary in blessing, so be you not weary of well doing.

Relieve the poor, but those who are *poor indeed;* and the poor indeed are they who not only want the things they ask, but want also the means to get without asking.

The humble man has always before his eyes his own defects and imperfections; in others he considers chiefly their virtues and perfections.

If thy hatred of evil be right, know that it *will show itself first at home*; as we feel aversions most, when the things are nearest to us.

Love is like an artificial glass, and, when we look through it, an enemy appears a friend; disgrace, honour, difficulties, nothing.

"He that giveth to the poor, lendeth unto the Lord;" there is more rhetoric in that one sentence than in a library of sermons.

☞ M. Mabrun, a French chemist, has proved by a practical test, that fresh milk can be kept for almost any given period, perfectly sweet and good, simply by the complete exclusion of atmospheric air. He received 1500 francs as a prize for his discovery from the French Academy of Sciences.

Baltimore Markets, Aug. 21, 1867.

COFFEE.—Rio, 15a18¼ cts. gold, according to quality.—Laguayra ——, and Java ——.

COTTON.—We quote prices as follows, viz:

Grades.	*Upland.*	*Gulf.*
Ordinary	23¼	—
Good do	25½	—
Low Middling	27½	—
Middling	28	—

FERTILIZERS.—Peruvian Guano.$80; Patapsco Co's $60, Reese & Co's. Soluble Pacific Guano, $65; Flour of Bone; $60; G.Ober's(Kettlewells) AA Manipulated,$70; A do.$60; Ammoniated Alkaline Phosphate,$55; Alkaline Phos. $45; Baltimore City Company's Fertilizer, $40; do., Flour of Bone, $60; do., Ground Bone, $45; do., Poudrette, $20; Baugh's Raw-bone Phosphate, $56; Maryland Powder of Bone, $50; Rhodes' Super Phosphate, $55; Lister's Bone Super-Phosphate $55; Andrew Coe's Super-Phosphate of Lime, $60;—all per ton of 2,000 lbs.; Pure Ground Plaster, $13.50a$14.00 per ton, or $2.50 per bbl. Shell Lime, slaked, 6c., unslaked, 10c per bushel, at kilns.

FLOUR.—Howard Street Super and Cut Extra, $9.25a ——; Family, $10.00a12.50; City Mills Super, $9.00a 10.00; Baltimore Family, $13.50.

Rye Flour and Corn Meal.—Rye Flour, new, $8.00a 8.50; Corn Meal, $5.50a6 00.

GRAIN.—*Wheat.*—Good to prime Red, $2 15a2.50; White, $2.25a$2.50.

Rye.—$1.33a$1.45 per bushel.

Oats.—Heavy to light—ranging as to character from 62 a70c. per bushel.

Corn.—White, $1 12a$1.16; Yellow, $1 15a1.18 per bushel.

HAY AND STRAW.—Timothy $20a22, and Rye Straw $25 a$26 per ton.

PROVISIONS.—*Bacon.*—Shoulders, 13¼a13¼ cts.; Sides 15¼a16½; Hams, plain bagged, 18a20 cts.; sugar cured, 22a23 cts. per lb.

SALT.—Liverpool Ground Alum, $2.20a2.25; Fine, $3.00 a$3.20; Turk's Island, 58a60c. per bushel.

TOBACCO.—We give the range of prices as follows:

Maryland.	
Frosted to common	$——a ——
Sound common	4.00a 4.50
Middling	7.50a 5.00
Good to fine brown	10 00a15.00
Fancy	17.00a25 00
Upper country	3.00a30.00
Ground leaves, new	3.00a5.00

Ohio.	
Inferior to good common	3.00a 6.00
Brown and spangled	6.00a12.00
Medium to fine red and spangled	8.00a20.00
Fine yellow and fancy	20.00a30.00

WHISKEY—30a36 cts. per gallon, in barrels, in bond.

WOOL —We quote: Unwashed, 26a28 cts. per lb.; Tub-washed, 37a39 cents.

CATTLE MARKET.—Common, $5.00a$5 50; Good, $5.50a 6.50$; Prime Beeves, $7.25a8.37 per 100 lbs.

Sheep—4a5¼ cents per lb. gross. Lambs $2.00a4.00 per head. Stock Sheep $3.00 per head.

Hogs—$10.00a10.50 per 100 lbs., net.

Wholesale Produce Market.

Prepared for the American Farmer by HEWES & WARNER, *Produce and Commission Merchants, 67 Exchange Place.*

BALTIMORE, August 21, 1867.

BUTTER.—Western solid packed 15 to 25; Glades, 20 to 25; Goshen, — to —.

BEESWAX—38a40 cts.

CHEESE.—Eastern, 16a18; Western, 14.

DRIED FRUIT.—Apples, 5 to 6; Peaches, 10.

EGGS—15a18 cents per dozen.

FEATHERS.—Live Geese, 60 to 80 cents.

LARD.—Western, 12a13½; City rendered, 12a14¼ cts.

TALLOW.—10a11 cents.

POTATOES.—New, $2.00a$3.00 cents per bushel.

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